

PATENT ABSTRACTS OF JAPAN

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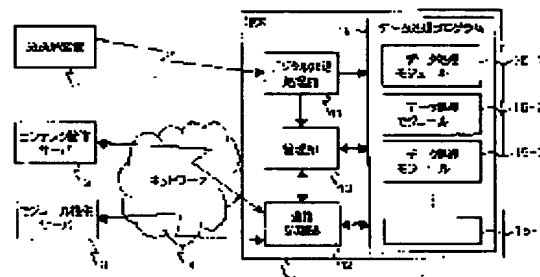
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(54) PROGRAM DOWNLOAD SYSTEM, BROADCASTING COMMUNICATION FUSION TERMINAL AND PROGRAM DOWNLOAD METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To simplify and quicken the download processing of the browser software of a broadcasting communication fusion terminal.

SOLUTION: A module providing server 3 preliminarily stores a data processing module for realizing a part of the function of a data processing program and its version number. A broadcasting station device 1 broadcasts download announcement information including the address of the module providing server 3 in which the latest data processing module and the version number are stored, together with data broadcasting. A terminal 5 receives the download announcement information together with the data broadcasting, and separates them and analyzes the separation result. The terminal 5 requests the data processing module of the latest version number to a module providing server 3 when the latest version number is newer than the version number which is being used at present. The module providing server 3 downloads the requested data processing module to the terminal 5 in response to the request from the terminal 5.



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CLAIMS

[Claim(s)]

[Claim 1] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program, and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, The program download system which has broadcasting station equipment which broadcasts download notice information including the newest version number of a data-processing module, and the address of said module offer server with which this data-processing module is stored with said data broadcasting.

[Claim 2] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program, and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, Download notice information including the 1st address which shows said module offer server in which the newest version number and this newest data-processing module of a data-processing module are stored is stored. The notice information server which will transmit said download notice information to this terminal if there is a demand from said accessed terminal, The program download system which has broadcasting station equipment which broadcasts the 2nd address which shows the notice information server which transmits said download notice information with said data broadcasting.

[Claim 3] The newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application is a program download system according to claim 1 or 2 by which it exists about each of two or more of said data-processing modules, and the application identification information for identifying said each application further is contained in said version notice information.

[Claim 4] Said each application is a program download system according to claim 3 which is the attribute of data broadcasting which said user should be shown with said each data-processing module.

[Claim 5] The program download system according to claim 3 or 4 used as the layered structure which said application identification information becomes from two or more hierarchies.

[Claim 6] Said version number is a program download system given in any 1 term of claims 3-5 managed for said every application.

[Claim 7] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is a broadcast communication fusion terminal with the function of two-way communication. Said data broadcasting The newest version number of at least one data-processing module which is installed in the data-processing program for showing a user, and realizes the function of a part of this data-processing program, and the address on the network where this data-processing module is stored A digital-broadcasting processing means to receive, and to separate and analyze the download

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CLAIMS

[Claim(s)]

[Claim 1] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program, and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, The program download system which has broadcasting station equipment which broadcasts download notice information including the newest version number of a data-processing module, and the address of said module offer server with which this data-processing module is stored with said data broadcasting.

[Claim 2] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program, and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, Download notice information including the 1st address which shows said module offer server in which the newest version number and this newest data-processing module of a data-processing module are stored is stored. The notice information server which will transmit said download notice information to this terminal if there is a demand from said accessed terminal, The program download system which has broadcasting station equipment which broadcasts the 2nd address which shows the notice information server which transmits said download notice information with said data broadcasting.

[Claim 3] The newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application is a program download system according to claim 1 or 2 by which it exists about each of two or more of said data-processing modules, and the application identification information for identifying said each application further is contained in said version notice information.

[Claim 4] Said each application is a program download system according to claim 3 which is the attribute of data broadcasting which said user should be shown with said each data-processing module.

[Claim 5] The program download system according to claim 3 or 4 used as the layered structure which said application identification information becomes from two or more hierarchies.

[Claim 6] Said version number is a program download system given in any 1 term of claims 3-5 managed for said every application.

[Claim 7] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is a broadcast communication fusion terminal with the function of two-way communication. Said data broadcasting The newest version number of at least one data-processing module which is installed in the data-processing program for showing a user, and realizes the function of a part of this data-processing program, and the address on the network where this data-processing module is stored A digital-broadcasting processing means to receive, and to separate and analyze the download

notice information to include with said data broadcasting, It determines to download the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If download of said data-processing module is determined by said management tool The broadcast communication fusion terminal which has a communications processing means to use said address for the module offer server which stores said data-processing module and its version number, to access it, and to acquire said data-processing module by download.

[Claim 8] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And are a broadcast communication fusion terminal with the function of two-way communication, and it is installed in the data-processing program for showing a user said data broadcasting. The function of a part of this data-processing program The 2nd address on the network where download notice information including the newest version number of at least one data-processing module to realize and the 1st address on the network where this data-processing module is stored is released is received with said data broadcasting. Dissociate and it determines downloading the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out as a digital-broadcasting processing means to analyze. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If said 2nd address is obtained, using it, will access the notice information server which stores said download notice information, and said download notice information will be acquired. If the newest version number and said 1st newest address of said data-processing module are taken out from this download notice information and download of said data-processing module is determined by said management tool The broadcast communication fusion terminal which has a communications processing means to use said 1st address for the module offer server which stores said data-processing module and its version number, to access it, and to acquire said data-processing module by download.

[Claim 9] When the version number is given to said 2nd address and said 2nd address is obtained, said communications processing means is a broadcast communication fusion terminal according to claim 8 with which it uses said 2nd address and accesses said notice information server only when newer than a version number although the version number of said 2nd obtained address processed last time.

[Claim 10] The newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application is a broadcast communication fusion terminal given in any 1 term of claims 7-9 which exists about each of two or more of said data-processing modules and by which the application identification information for identifying said each application further is contained in said download notice information.

[Claim 11] Said each application is a broadcast communication fusion terminal according to claim 10 which is the attribute of data broadcasting which said user should be shown with said each data-processing module.

[Claim 12] The broadcast communication fusion terminal according to claim 10 or 11 used as the layered structure which said application identification information becomes from two or more hierarchies.

[Claim 13] Said version number is a broadcast communication fusion terminal given in any 1 term of claims 10-12 managed for said every application.

[Claim 14] If the newest version number of one of data-processing modules is acquired from said download notice information A version number is compared with old and new although current use of said management tool is carried out with the newest version number of this data-processing module. If said newest version number is newer than said version number by which current use is carried out in said comparison result once storing a comparison result in memory The broadcast communication fusion terminal according to claim 13 which determines to download said data-processing module of said newest version.

[Claim 15] Said management tool is a broadcast communication fusion terminal according to claim 14 which will determine to download said data-processing module of said newest version if said newest version number is newer than said version number by which current use is carried out in said comparison result when it is necessary to perform said data-processing module.

[Claim 16] Said management tool is a broadcast communication fusion terminal according to claim 14 or 15

notice information to include with said data broadcasting, It determines to download the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If download of said data-processing module is determined by said management tool The broadcast communication fusion terminal which has a communications processing means to use said address for the module offer server which stores said data-processing module and its version number, to access it, and to acquire said data-processing module by download.

[Claim 8] The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And are a broadcast communication fusion terminal with the function of two-way communication, and it is installed in the data-processing program for showing a user said data broadcasting. The function of a part of this data-processing program The 2nd address on the network where download notice information including the newest version number of at least one data-processing module to realize and the 1st address on the network where this data-processing module is stored is released is received with said data broadcasting. Dissociate and it determines downloading the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out as a digital-broadcasting processing means to analyze. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If said 2nd address is obtained, using it, will access the notice information server which stores said download notice information, and said download notice information will be acquired. If the newest version number and said 1st newest address of said data-processing module are taken out from this download notice information and download of said data-processing module is determined by said management tool The broadcast communication fusion terminal which has a communications processing means to use said 1st address for the module offer server which stores said data-processing module and its version number, to access it, and to acquire said data-processing module by download.

[Claim 9] When the version number is given to said 2nd address and said 2nd address is obtained, said communications processing means is a broadcast communication fusion terminal according to claim 8 with which it uses said 2nd address and accesses said notice information server only when newer than a version number although the version number of said 2nd obtained address processed last time.

[Claim 10] The newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application is a broadcast communication fusion terminal given in any 1 term of claims 7-9 which exists about each of two or more of said data-processing modules and by which the application identification information for identifying said each application further is contained in said download notice information.

[Claim 11] Said each application is a broadcast communication fusion terminal according to claim 10 which is the attribute of data broadcasting which said user should be shown with said each data-processing module.

[Claim 12] The broadcast communication fusion terminal according to claim 10 or 11 used as the layered structure which said application identification information becomes from two or more hierarchies.

[Claim 13] Said version number is a broadcast communication fusion terminal given in any 1 term of claims 10-12 managed for said every application.

[Claim 14] If the newest version number of one of data-processing modules is acquired from said download notice information A version number is compared with old and new although current use of said management tool is carried out with the newest version number of this data-processing module. If said newest version number is newer than said version number by which current use is carried out in said comparison result once storing a comparison result in memory The broadcast communication fusion terminal according to claim 13 which determines to download said data-processing module of said newest version.

[Claim 15] Said management tool is a broadcast communication fusion terminal according to claim 14 which will determine to download said data-processing module of said newest version if said newest version number is newer than said version number by which current use is carried out in said comparison result when it is necessary to perform said data-processing module.

[Claim 16] Said management tool is a broadcast communication fusion terminal according to claim 14 or 15

which will determine to download said data-processing module of said newest version if said newest version number is newer than said version number by which current use is carried out in said comparison result when there are directions from said user.

[Claim 17] From the program download system which has a module offer server and broadcasting station equipment To a terminal with the function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, and the function of two-way communication Are the program download approach which downloads the program performed at this terminal, and it sets to said module offer server. The step which stores beforehand at least one data-processing module which is installed in the data-processing program performed at said terminal, and realizes the function of a part of this data-processing program, and its version number in order to show a user said data broadcasting,

which will determine to download said data-processing module of said newest version if said newest version number is newer than said version number by which current use is carried out in said comparison result when there are directions from said user.

[Claim 17] From the program download system which has a module offer server and broadcasting station equipment To a terminal with the function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, and the function of two-way communication Are the program download approach which downloads the program performed at this terminal, and it sets to said module offer server. The step which stores beforehand at least one data-processing module which is installed in the data-processing program performed at said terminal, and realizes the function of a part of this data-processing program, and its version number in order to show a user said data broadcasting,

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the system which manages the version of the browser application especially used at a terminal about the download of browser application which interprets and presents data broadcasting in the broadcast accepting station which receives the image broadcast and data broadcasting which are included in digital broadcasting.

[0002]

[Description of the Prior Art] Although the latest version of the browser software for receiving data broadcasting conventionally is downloaded to a terminal, two-way communication of the terminal was carried out to the server which offers browser software, and it acquired desired browser software. In order to choose desired browser software by the two-way communication between a terminal and a server, how many steps of that actuation are usually needed. Therefore, acquisition of browser software took time amount and costs had also started in connection with it.

[0003] By using broadcast for acquisition of the browser software for data broadcasting, although time amount is shortened, the digital-broadcasting download system indicated by JP,11-098474,A can be used. In the digital-broadcasting download system indicated by JP,11-098474,A, in addition to the discernment data for identifying download data, the individual data relevant to download data are added to download data, and the version of a manufacturer, a model, and software etc. is transmitted to a receiver. A receiver separates individual data from the received download data, and displays them as a message.

[0004] The message data to an addressee and the information about download software classification are included in individual data. Such information demands selection of download processing from an addressee. When an addressee chooses download processing with reference to it, the time amount concerning download is shortened.

[0005] That is, in the digital-broadcasting download system indicated by JP,11-098474,A, an addressee is shown the various information about download data. And according to the directions of an addressee based on various information, the increase in efficiency of download is attained by changing download processing.

[0006] In addition, the notice approach at the time of version up generating indicated by JP,2000-207218,A is related with the communication system which distributes a program to a mounted terminal by radio etc. from the central office. According to the approach indicated by JP,2000-207218,A, if version up of a program occurs in the central office, that will be notified quickly and certainly to a mounted terminal by wording of a telegram, an electronic mail, or broadcast.

[0007] And whether it downloads by comparing an old and new version at a mounted terminal can judge easily.

[0008] The communication terminal device which downloads and updates a program is equipped with the program configuration management equipment indicated by JP,2000-293365,A. Program configuration management equipment memorizes the downloaded program not only including the latest version but including the past version. And when program configuration management equipment had a bug in the newly downloaded program, or when the module which constitutes a program downloads according to an individual and nonconformance arises in an inter module, program actuation of a communication terminal device is maintained by returning to the program of the past version.

[0009] Although the digital-broadcasting receiver indicated by JP,2001-016512,A is a receiver which can

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[0009] Although the digital-broadcasting receiver indicated by JP,2001-016512,A is a receiver which can

rewrite a program, the program which the central processing unit performs at the time of initial starting is recorded on the rewriting impossible field. The processing which performs minimum starting and actuation is included in the program performed at the time of starting.

[0010] Even if the program of a rewritable field is destroyed by a certain cause, a digital-broadcasting receiver can perform minimum starting and actuation by the program of a rewriting impossible field.

[0011] That is, according to the program configuration management equipment indicated by JP,2000-293365,A or the digital-broadcasting receiver indicated by JP,2001-016512,A, the program which actuation of a terminal is maintained when fault is in the downloaded program, and does not have fault can be redownloaded again.

[0012] Receiving multiplex broadcasting indicated by JP,08-195690,A, the multiplex-broadcasting transmitter-receiver sent out to an information processor chooses only the information on the class beforehand demanded as receiving multiplex broadcasting, and transmits to an information processor. Therefore, an information processor can obtain only a required thing efficiently out of two or more information included in multiplex broadcasting.

[0013]

[Problem(s) to be Solved by the Invention] Although the conventional technique mentioned above is applicable to the download of browser application which interprets and presents data broadcasting in the broadcast accepting station which receives image broadcast and data broadcasting of digital broadcasting, the system which applied these conventional techniques has the trouble shown below.

[0014] In the digital-broadcasting download system of JP,11-098474,A, the various information included in download data is various. Therefore, download processing could not be easily chosen from these various information, but the addressee needed to judge synthetically based on those information. Therefore, in order to realize efficient download, the addressee needed to become skillful to some extent about download.

[0015] According to the notice approach at the time of version up generating indicated by JP,2000-207218,A, it could judge whether a terminal would download a program, without asking a user, but since the version up for every module was not able to be notified in the case of a complicated program which consists of two or more modules, the addition for every module and modification were efficiently inapplicable to the terminal. Moreover, it was not able to be said that only the required part of a program was downloaded efficiently and used according to the various applications in each user or each terminal.

[0016] Moreover, if there was version up of a program, since it would be notified to a terminal and download would occur in whenever [the], the actuation responsibility of a terminal fell by download which is not needed, and the pocketbook burden was increasing.

[0017] When there was fault which was downloaded according to the program configuration management equipment indicated by JP,2000-293365,A or the digital-broadcasting receiver indicated by JP,2001-016512,A, the fault produced in the complicated program which accepts a demand of terminals but various possible [maintaining actuation of a terminal] and a user general-purpose was not able to be reduced.

[0018] The multiplex-broadcasting receiving set indicated by JP,08-195690,A needed to define the class of required information beforehand, in order to acquire only required information. Since browser application changed the function needed by actuation of the occasional user, as indicated by JP,08-195690,A, it was difficult to set up the module wished to have beforehand.

[0019] The purpose of this invention is making download processing of the browser software of a broadcast communication fusion terminal simply and quick.

[0020] Other purposes of this invention are making various functions of a data-processing program available easily in the newest condition in a broadcast communication fusion terminal.

[0021] The purpose of further others of this invention is preventing responsibility degradation of a pocketbook burden and equipment occurring to a user.

[0022]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the program download system of this invention The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program,

rewrite a program, the program which the central processing unit performs at the time of initial starting is recorded on the rewriting impossible field. The processing which performs minimum starting and actuation is included in the program performed at the time of starting.

[0010] Even if the program of a rewritable field is destroyed by a certain cause, a digital-broadcasting receiver can perform minimum starting and actuation by the program of a rewriting impossible field.

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[0012] Receiving multiplex broadcasting indicated by JP,08-195690,A, the multiplex-broadcasting transmitter-receiver sent out to an information processor chooses only the information on the class beforehand demanded as receiving multiplex broadcasting, and transmits to an information processor. Therefore, an information processor can obtain only a required thing efficiently out of two or more information included in multiplex broadcasting.

[0013]

[Problem(s) to be Solved by the Invention] Although the conventional technique mentioned above is applicable to the download of browser application which interprets and presents data broadcasting in the broadcast accepting station which receives image broadcast and data broadcasting of digital broadcasting, the system which applied these conventional techniques has the trouble shown below.

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[0015] According to the notice approach at the time of version up generating indicated by JP,2000-207218,A, it could judge whether a terminal would download a program, without asking a user, but since the version up for every module was not able to be notified in the case of a complicated program which consists of two or more modules, the addition for every module and modification were efficiently inapplicable to the terminal. Moreover, it was not able to be said that only the required part of a program was downloaded efficiently and used according to the various applications in each user or each terminal.

[0016] Moreover, if there was version up of a program, since it would be notified to a terminal and download would occur in whenever [the], the actuation responsibility of a terminal fell by download which is not needed, and the pocketbook burden was increasing.

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[0018] The multiplex-broadcasting receiving set indicated by JP,08-195690,A needed to define the class of required information beforehand, in order to acquire only required information. Since browser application changed the function needed by actuation of the occasional user, as indicated by JP,08-195690,A, it was difficult to set up the module wished to have beforehand.

[0019] The purpose of this invention is making download processing of the browser software of a broadcast communication fusion terminal simply and quick.

[0020] Other purposes of this invention are making various functions of a data-processing program available easily in the newest condition in a broadcast communication fusion terminal.

[0021] The purpose of further others of this invention is preventing responsibility degradation of a pocketbook burden and equipment occurring to a user.

[0022]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the program download system of this invention The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program,

and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, It has broadcasting station equipment which broadcasts download notice information including the newest version number of a data-processing module, and the address of said module offer server with which this data-processing module is stored with said data broadcasting.

[0023] Therefore, since a data-processing module is briefly managed by old and new [of a version number] and a version number is notified to a terminal by broadcast, it can judge easily whether the version number notified by broadcast should be downloaded by comparing with a version number in use.

[0024] Moreover, a data-processing program can be added and updated for two or more data-processing modules of every.

[0025] Other program download systems of this invention The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program, and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, Download notice information including the 1st address which shows said module offer server in which the newest version number and this newest data-processing module of a data-processing module are stored is stored. If there is a demand from said accessed terminal, it has broadcasting station equipment which broadcasts the 2nd address which shows the notice information server which transmits said download notice information, and the notice information server which transmits said download notice information to this terminal with said data broadcasting.

[0026] In addition, the newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application exists about each of two or more of said data-processing modules, and the application identification information for identifying said each application further may be contained in said version notice information.

[0027] Therefore, since two or more data-processing modules are prepared according to the various applications in each user or each terminal, only what is needed for each user or each terminal is chosen easily and it can download efficiently, the data-processing program in which various functions are required and it deals is efficiently upgradable.

[0028] Moreover, the data-processing module according to various applications can be prepared separately.

[0029] Moreover, said each application may be the attribute of data broadcasting which said user should be shown with said each data-processing module.

[0030] Therefore, a user should just set up or input according to the class of data broadcasting which does not set up or input but wishes for the class of data-processing module.

[0031] Moreover, said application identification information may have a layered structure which consists of two or more hierarchies.

[0032] Moreover, said version number may be managed for said every application.

[0033] The function which the broadcast communication fusion terminal of this invention receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is a broadcast communication fusion terminal with the function of two-way communication. Said data broadcasting The newest version number of at least one data-processing module which is installed in the data-processing program for showing a user, and realizes the function of a part of this data-processing program, and the address on the network where this data-processing module is stored A digital-broadcasting processing means to receive, and to separate and analyze the download notice information to include with said data broadcasting, It determines to download the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If download of said data-processing module is determined by said management tool Said address is used for the module offer server which stores said data-processing module and its version number, it is accessed, and it has a communications processing means to acquire said data-processing module by download.

and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, It has broadcasting station equipment which broadcasts download notice information including the newest version number of a data-processing module, and the address of said module offer server with which this data-processing module is stored with said data broadcasting.

[0023] Therefore, since a data-processing module is briefly managed by old and new [of a version number] and a version number is notified to a terminal by broadcast, it can judge easily whether the version number notified by broadcast should be downloaded by comparing with a version number in use.

[0024] Moreover, a data-processing program can be added and updated for two or more data-processing modules of every.

[0025] Other program download systems of this invention The function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is the program download system which downloads the program performed at this terminal to a terminal with the function of two-way communication. It is installed in the data-processing program performed at said terminal in order to show a user said data broadcasting. If at least one data-processing module which realizes the function of a part of this data-processing program, and its version number are stored and there is a demand from said terminal The module offer server which downloads the demanded data-processing module to this terminal, Download notice information including the 1st address which shows said module offer server in which the newest version number and this newest data-processing module of a data-processing module are stored is stored. If there is a demand from said accessed terminal, it has broadcasting station equipment which broadcasts the 2nd address which shows the notice information server which transmits said download notice information, and the notice information server which transmits said download notice information to this terminal with said data broadcasting.

[0026] In addition, the newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application exists about each of two or more of said data-processing modules, and the application identification information for identifying said each application further may be contained in said version notice information.

[0027] Therefore, since two or more data-processing modules are prepared according to the various applications in each user or each terminal, only what is needed for each user or each terminal is chosen easily and it can download efficiently, the data-processing program in which various functions are required and it deals is efficiently upgradable.

[0028] Moreover, the data-processing module according to various applications can be prepared separately.

[0029] Moreover, said each application may be the attribute of data broadcasting which said user should be shown with said each data-processing module.

[0030] Therefore, a user should just set up or input according to the class of data broadcasting which does not set up or input but wishes for the class of data-processing module.

[0031] Moreover, said application identification information may have a layered structure which consists of two or more hierarchies.

[0032] Moreover, said version number may be managed for said every application.

[0033] The function which the broadcast communication fusion terminal of this invention receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And it is a broadcast communication fusion terminal with the function of two-way communication. Said data broadcasting The newest version number of at least one data-processing module which is installed in the data-processing program for showing a user, and realizes the function of a part of this data-processing program, and the address on the network where this data-processing module is stored A digital-broadcasting processing means to receive, and to separate and analyze the download notice information to include with said data broadcasting, It determines to download the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If download of said data-processing module is determined by said management tool Said address is used for the module offer server which stores said data-processing module and its version number, it is accessed, and it has a communications processing means to acquire said data-processing module by download.

[0034] The function which other broadcast communication fusion terminals of this invention receive image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And are a broadcast communication fusion terminal with the function of two-way communication, and it is installed in the data-processing program for showing a user said data broadcasting. The function of a part of this data-processing program The 2nd address on the network where download notice information including the newest version number of at least one data-processing module to realize and the 1st address on the network where this data-processing module is stored is released is received with said data broadcasting. Dissociate and it determines downloading the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out as a digital-broadcasting processing means to analyze. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If said 2nd address is obtained, using it, will access the notice information server which stores said download notice information, and said download notice information will be acquired. If the newest version number and said 1st newest address of said data-processing module are taken out from this download notice information and download of said data-processing module is determined by said management tool Said 1st address is used for the module offer server which stores said data-processing module and its version number, it is accessed, and it has a communications processing means to acquire said data-processing module by download.

[0035] In addition, the version number is given to said 2nd address, and if said 2nd address is obtained, although said communications processing means was processed last time, only when newer than a version number, the version number of said 2nd obtained address may use said 2nd address, and may access it at said notice information server.

[0036] Moreover, the newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application exists about each of two or more of said data-processing modules, and the application identification information for identifying said each application further may be contained in said download notice information.

[0037] Moreover, said each application is the attribute of data broadcasting which said user should be shown with said each data-processing module.

[0038] Moreover, said application identification information may have a layered structure which consists of two or more hierarchies.

[0039] Moreover, said version number may be managed for said every application.

[0040] Moreover, as long as said newest version number is newer than said version number by which current use is carried out in said comparison result once comparing a version number with old and new and storing a comparison result in memory, although current use of said management tool is carried out with the newest version number of this data-processing module when the newest version number of one of data-processing modules is acquired from said download notice information, you may determine to download said data-processing module of said newest version.

[0041] Therefore, the stage to download a data-processing module can be shifted for every broadcast communication fusion terminal by recording on memory that there was version up for every data-processing module by the comparison result, and immediately not downloading, but downloading behind.

[0042] Moreover, when it is necessary to perform said data-processing module, said management tool If said newest version number is newer than said version number by which current use is carried out in said comparison result You may determine to download said data-processing module of said newest version. Moreover, said management tool When there are directions from said user, as long as said newest version number is newer than said version number by which current use is carried out in said comparison result, you may determine to download said data-processing module of said newest version.

[0043] Therefore, when it records on memory that there was version up for every data-processing module by the comparison result, and it does not immediately download but activation of the data-processing module is needed, or when there are directions of a user, it downloads.

[0044] The program download approach of this invention from the program download system which has a module offer server and broadcasting station equipment To a terminal with the function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, and the function of two-way communication Are the program download approach which downloads the program performed at this terminal, and it sets to said module offer server. The step which stores beforehand at least one data-

[0034] The function which other broadcast communication fusion terminals of this invention receive image broadcast and data broadcasting of digital broadcasting, and is shown to a user, And are a broadcast communication fusion terminal with the function of two-way communication, and it is installed in the data-processing program for showing a user said data broadcasting. The function of a part of this data-processing program The 2nd address on the network where download notice information including the newest version number of at least one data-processing module to realize and the 1st address on the network where this data-processing module is stored is released is received with said data broadcasting. Dissociate and it determines downloading the data-processing module of said newest version number, when said newest version number is newer than the version number of the data-processing module by which current use is carried out as a digital-broadcasting processing means to analyze. The management tool which will install this data-processing module in said data-processing program if this data-processing module is acquired, If said 2nd address is obtained, using it, will access the notice information server which stores said download notice information, and said download notice information will be acquired. If the newest version number and said 1st newest address of said data-processing module are taken out from this download notice information and download of said data-processing module is determined by said management tool Said 1st address is used for the module offer server which stores said data-processing module and its version number, it is accessed, and it has a communications processing means to acquire said data-processing module by download.

[0035] In addition, the version number is given to said 2nd address, and if said 2nd address is obtained, although said communications processing means was processed last time, only when newer than a version number, the version number of said 2nd obtained address may use said 2nd address, and may access it at said notice information server.

[0036] Moreover, the newest version number by which said data-processing module is contained in those with two or more and said download notice information for every application exists about each of two or more of said data-processing modules, and the application identification information for identifying said each application further may be contained in said download notice information.

[0037] Moreover, said each application is the attribute of data broadcasting which said user should be shown with said each data-processing module.

[0038] Moreover, said application identification information may have a layered structure which consists of two or more hierarchies.

[0039] Moreover, said version number may be managed for said every application.

[0040] Moreover, as long as said newest version number is newer than said version number by which current use is carried out in said comparison result once comparing a version number with old and new and storing a comparison result in memory, although current use of said management tool is carried out with the newest version number of this data-processing module when the newest version number of one of data-processing modules is acquired from said download notice information, you may determine to download said data-processing module of said newest version.

[0041] Therefore, the stage to download a data-processing module can be shifted for every broadcast communication fusion terminal by recording on memory that there was version up for every data-processing module by the comparison result, and immediately not downloading, but downloading behind.

[0042] Moreover, when it is necessary to perform said data-processing module, said management tool If said newest version number is newer than said version number by which current use is carried out in said comparison result You may determine to download said data-processing module of said newest version. Moreover, said management tool When there are directions from said user, as long as said newest version number is newer than said version number by which current use is carried out in said comparison result, you may determine to download said data-processing module of said newest version.

[0043] Therefore, when it records on memory that there was version up for every data-processing module by the comparison result, and it does not immediately download but activation of the data-processing module is needed, or when there are directions of a user, it downloads.

[0044] The program download approach of this invention from the program download system which has a module offer server and broadcasting station equipment To a terminal with the function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, and the function of two-way communication Are the program download approach which downloads the program performed at this terminal, and it sets to said module offer server. The step which stores beforehand at least one data-

processing module which is installed in the data-processing program performed at said terminal, and realizes the function of a part of this data-processing program, and its version number in order to show a user said data broadcasting, In the step which broadcasts the download notice information which includes the newest version number of said data-processing module, and the address of said module offer server with which this data-processing module is stored in said broadcasting station equipment with said data broadcasting, and said terminal The step which receives, and separates and analyzes said download notice information with said data broadcasting, The step which requires the data-processing module of said newest version number of said module offer server when said newest version number is newer than the version number of the data-processing module by which current use is carried out, In said module offer server, if there is a demand from said terminal, it has the step which downloads said demanded data-processing module to this terminal.

[0045] Other program download approaches of this invention From the program download system which has a module offer server and broadcasting station equipment To a terminal with the function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, and the function of two-way communication Are the program download approach which downloads the program performed at this terminal, and it sets to said module offer server. The step which stores beforehand at least one data-processing module which is installed in the data-processing program performed at said terminal, and realizes the function of a part of this data-processing program, and its version number in order to show a user said data broadcasting, In the step which broadcasts the download notice information which includes the newest version number of said data-processing module, and the address of said module offer server with which this data-processing module is stored in said broadcasting station equipment with said data broadcasting, and said terminal The step which receives, and separates and analyzes said download notice information with said data broadcasting, The step which requires the data-processing module of said newest version number of said module offer server when said newest version number is newer than the version number of the data-processing module by which current use is carried out, In said module offer server, if there is a demand from said terminal, it has the step which downloads said demanded data-processing module to this terminal.

[0046]

[Embodiment of the Invention] The 1st operation gestalt of this invention is explained to a detail with reference to a drawing.

[0047] Drawing 1 is the block diagram showing the program download structure of a system of the 1st operation gestalt. If drawing 1 is referred to, the program download system of the 1st operation gestalt has broadcasting station equipment 1, the contents distribution server 2, and the module offer server 3. It is received by the terminal 5 and a user is shown digital broadcasting from broadcasting station equipment 1. Moreover, a terminal 5 is connectable with the contents distribution server 2 and the module offer server 3 through a network 4.

[0048] Broadcasting station equipment 1 is installed in a broadcasting station, and distributes digital broadcasting including image broadcast and data broadcasting by the wireless electric wave. Image broadcast is broadcast containing the voice which synchronized with an image and it. Data broadcasting is broadcast of the data shown by browser software.

[0049] Download notice information is included in data broadcasting from broadcasting station equipment 1. Download notice information consists of the newest version number of the data-processing module which constitutes the data-processing program which is browser software, and the address of a server with which the data-processing module was stored.

[0050] The contents distribution server 2 is a server which offers the information relevant to digital broadcasting from broadcasting station equipment 1, and the information on other through a network 4. A user is shown by browser software the information offered from the contents distribution server 2 at a terminal 5.

[0051] The module offer server 3 stores the latest version of each data-processing module. The module offer server 3 will send the data-processing module of the specified version to a terminal 5, if it is accessed from a terminal 5 and one of data-processing modules is specified.

[0052] Networks 4 are communication networks, such as the Internet in which data transfer is possible.

[0053] The terminal 5 has the digital-broadcasting processing section 11, the communications processing section 12, and the Management Department 13, and can show a user the both sides of the image

processing module which is installed in the data-processing program performed at said terminal, and realizes the function of a part of this data-processing program, and its version number in order to show a user said data broadcasting, In the step which broadcasts the download notice information which includes the newest version number of said data-processing module, and the address of said module offer server with which this data-processing module is stored in said broadcasting station equipment with said data broadcasting, and said terminal The step which receives, and separates and analyzes said download notice information with said data broadcasting, The step which requires the data-processing module of said newest version number of said module offer server when said newest version number is newer than the version number of the data-processing module by which current use is carried out, In said module offer server, if there is a demand from said terminal, it has the step which downloads said demanded data-processing module to this terminal.

[0045] Other program download approaches of this invention From the program download system which has a module offer server and broadcasting station equipment To a terminal with the function which receives image broadcast and data broadcasting of digital broadcasting, and is shown to a user, and the function of two-way communication Are the program download approach which downloads the program performed at this terminal, and it sets to said module offer server. The step which stores beforehand at least one data-processing module which is installed in the data-processing program performed at said terminal, and realizes the function of a part of this data-processing program, and its version number in order to show a user said data broadcasting, In the step which broadcasts the download notice information which includes the newest version number of said data-processing module, and the address of said module offer server with which this data-processing module is stored in said broadcasting station equipment with said data broadcasting, and said terminal The step which receives, and separates and analyzes said download notice information with said data broadcasting, The step which requires the data-processing module of said newest version number of said module offer server when said newest version number is newer than the version number of the data-processing module by which current use is carried out, In said module offer server, if there is a demand from said terminal, it has the step which downloads said demanded data-processing module to this terminal.

[0046]

[Embodiment of the Invention] The 1st operation gestalt of this invention is explained to a detail with reference to a drawing.

[0047] Drawing 1 is the block diagram showing the program download structure of a system of the 1st operation gestalt. If drawing 1 is referred to, the program download system of the 1st operation gestalt has broadcasting station equipment 1, the contents distribution server 2, and the module offer server 3. It is received by the terminal 5 and a user is shown digital broadcasting from broadcasting station equipment 1. Moreover, a terminal 5 is connectable with the contents distribution server 2 and the module offer server 3 through a network 4.

[0048] Broadcasting station equipment 1 is installed in a broadcasting station, and distributes digital broadcasting including image broadcast and data broadcasting by the wireless electric wave. Image broadcast is broadcast containing the voice which synchronized with an image and it. Data broadcasting is broadcast of the data shown by browser software.

[0049] Download notice information is included in data broadcasting from broadcasting station equipment 1. Download notice information consists of the newest version number of the data-processing module which constitutes the data-processing program which is browser software, and the address of a server with which the data-processing module was stored.

[0050] The contents distribution server 2 is a server which offers the information relevant to digital broadcasting from broadcasting station equipment 1, and the information on other through a network 4. A user is shown by browser software the information offered from the contents distribution server 2 at a terminal 5.

[0051] The module offer server 3 stores the latest version of each data-processing module. The module offer server 3 will send the data-processing module of the specified version to a terminal 5, if it is accessed from a terminal 5 and one of data-processing modules is specified.

[0052] Networks 4 are communication networks, such as the Internet in which data transfer is possible.

[0053] The terminal 5 has the digital-broadcasting processing section 11, the communications processing section 12, and the Management Department 13, and can show a user the both sides of the image

approach included in digital broadcasting, and data broadcasting. The data-processing program 14 which consists of two or more data-processing modules 15-1, 15-2, ..., 15-n is recorded on the terminal 5.

[0054] The digital-broadcasting processing section 11 processes the image broadcast and data broadcasting which are included in digital broadcasting from broadcasting station equipment 1, and shows them to a user. Moreover, download notice information is included in data broadcasting, and the digital-broadcasting processing section 11 acquires download notice information from data broadcasting.

[0055] The communications processing section 12 accesses the contents distribution server 2 and the module offer server 3 through a network 4, and acquires required information from there. If there are directions from the Management Department 13 especially, a data-processing module will be downloaded and acquired from the module offer server 3.

[0056] The Management Department 13 compares the version number contained in the download notice information acquired in the digital-broadcasting processing section 11 with the version number of the data-processing module used by the data-processing program 14 now. If the Management Department 13 has the acquired version number newer than a current thing, it will direct download of the data-processing module of a high version in the communications processing section 12. And the Management Department 13 installs in the data-processing program 14 the data-processing module which the communications processing section 12 acquired by download.

[0057] Drawing 2 is a flow chart which shows actuation of the terminal of the 1st operation gestalt. If drawing 2 is referred to, a terminal 5 will acquire download notice information from data broadcasting first (step 101). Next, it judges whether the terminal 5 has acquired download notice information (step 102). If download notice information is not acquirable, a terminal 5 returns to processing of step 101.

[0058] If download notice information is acquirable, a terminal 5 will extract the newest version number from the download notice information (step 103).

[0059] In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1. And the data-processing module of a version number V0 is set to M0, and the data-processing module of a version number V1 is set to M1.

[0060] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 104). In addition, suppose that the address extracted here is A0.

[0061] Next, a terminal 5 compares the version number V0 extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 105). If a version number V0 is not newer than a version number V1, a terminal 5 returns to processing of step 101.

[0062] If a version number V0 is newer than a version number V1, a terminal 5 will access the module offer server 3 of the address A0, and will download the data-processing module M0 (step 106). Next, a terminal 5 replaces the newly downloaded data-processing module M0 with the data-processing module M1 by which current use is carried out, installs it in the data-processing program 14 (step 107), and returns to processing of step 101.

[0063] Efficient download is realized without being able to judge easily whether it should download, when according to this operation gestalt it is briefly managed by old and new [of a version number] whether it is the need and download of a data-processing module compares the version number to which it is notified by broadcast since a version number is notified to a terminal by broadcast, and shortening the time amount concerning a communication link, and requiring skill of a user.

[0064] Moreover, various functions can be made available to a user in the newest condition, suppressing the time and pocketbook burden of download low by adding and updating a data-processing program for two or more data-processing modules of every.

[0065] The 2nd operation gestalt of this invention is explained.

[0066] Drawing 3 is the block diagram showing the program download structure of a system of the 2nd operation gestalt. The system of drawing 3 has the notice information server 6, and differs from the system of drawing 1 by which download notice information is sent as data broadcasting from broadcasting station equipment 1 in that download notice information is distributed from the notice information server 6.

Moreover, in the system of drawing 3, the address of the notice information server 6 instead of download notice information is included in broadcast data. By the communications processing section 12, a terminal 5

approach included in digital broadcasting, and data broadcasting. The data-processing program 14 which consists of two or more data-processing modules 15-1, 15-2, ..., 15-n is recorded on the terminal 5.

[0054] The digital-broadcasting processing section 11 processes the image broadcast and data broadcasting which are included in digital broadcasting from broadcasting station equipment 1, and shows them to a user. Moreover, download notice information is included in data broadcasting, and the digital-broadcasting processing section 11 acquires download notice information from data broadcasting.

[0055] The communications processing section 12 accesses the contents distribution server 2 and the module offer server 3 through a network 4, and acquires required information from there. If there are directions from the Management Department 13 especially, a data-processing module will be downloaded and acquired from the module offer server 3.

[0056] The Management Department 13 compares the version number contained in the download notice information acquired in the digital-broadcasting processing section 11 with the version number of the data-processing module used by the data-processing program 14 now. If the Management Department 13 has the acquired version number newer than a current thing, it will direct download of the data-processing module of a high version in the communications processing section 12. And the Management Department 13 installs in the data-processing program 14 the data-processing module which the communications processing section 12 acquired by download.

[0057] Drawing 2 is a flow chart which shows actuation of the terminal of the 1st operation gestalt. If drawing 2 is referred to, a terminal 5 will acquire download notice information from data broadcasting first (step 101). Next, it judges whether the terminal 5 has acquired download notice information (step 102). If download notice information is not acquirable, a terminal 5 returns to processing of step 101.

[0058] If download notice information is acquirable, a terminal 5 will extract the newest version number from the download notice information (step 103).

[0059] In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1. And the data-processing module of a version number V0 is set to M0, and the data-processing module of a version number V1 is set to M1.

[0060] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 104). In addition, suppose that the address extracted here is A0.

[0061] Next, a terminal 5 compares the version number V0 extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 105). If a version number V0 is not newer than a version number V1, a terminal 5 returns to processing of step 101.

[0062] If a version number V0 is newer than a version number V1, a terminal 5 will access the module offer server 3 of the address A0, and will download the data-processing module M0 (step 106). Next, a terminal 5 replaces the newly downloaded data-processing module M0 with the data-processing module M1 by which current use is carried out, installs it in the data-processing program 14 (step 107), and returns to processing of step 101.

[0063] Efficient download is realized without being able to judge easily whether it should download, when according to this operation gestalt it is briefly managed by old and new [of a version number] whether it is the need and download of a data-processing module compares the version number to which it is notified by broadcast since a version number is notified to a terminal by broadcast, and shortening the time amount concerning a communication link, and requiring skill of a user.

[0064] Moreover, various functions can be made available to a user in the newest condition, suppressing the time and pocketbook burden of download low by adding and updating a data-processing program for two or more data-processing modules of every.

[0065] The 2nd operation gestalt of this invention is explained.

[0066] Drawing 3 is the block diagram showing the program download structure of a system of the 2nd operation gestalt. The system of drawing 3 has the notice information server 6, and differs from the system of drawing 1 by which download notice information is sent as data broadcasting from broadcasting station equipment 1 in that download notice information is distributed from the notice information server 6.

Moreover, in the system of drawing 3, the address of the notice information server 6 instead of download notice information is included in broadcast data. By the communications processing section 12, a terminal 5

accesses the notice information server 6 shown in the address included in broadcast data, and acquires download notice information.

[0067] Drawing 4 is a flow chart which shows actuation of the terminal of the 2nd operation gestalt. If drawing 4 is referred to, a terminal 5 will acquire the address of the notice information server 6 from data broadcasting first (step 201). In addition, suppose that the address acquired here is B0. Next, it judges whether the terminal 5 has acquired the address B0 of the notice information server 6 (step 202). If the address B0 is not acquirable, a terminal 5 returns to processing of step 201.

[0068] If the address B0 of the notice information server 6 is acquirable, a terminal 5 will access the notice information server 6, and will acquire download notice information (step 203). Next, a terminal 5 extracts the newest version number from the download notice information (step 204).

[0069] In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1. And the data-processing module of a version number V0 is set to M0, and the data-processing module of a version number V1 is set to M1.

[0070] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 205). In addition, suppose that the address extracted here is A0.

[0071] Next, a terminal 5 compares the version number V0 extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 206). If a version number V0 is not newer than a version number V1, a terminal 5 returns to processing of step 101.

[0072] If a version number V0 is newer than a version number V1, a terminal 5 will access the module offer server 3 of the address A0, and will download the data-processing module M0 (step 207). Next, a terminal 5 replaces the newly downloaded data-processing module M0 with the data-processing module M1 by which current use is carried out, installs it in the data-processing program 14 (step 208), and returns to processing of step 201.

[0073] The 3rd operation gestalt of this invention is explained.

[0074] The program download structure of a system of the 3rd operation gestalt is the same as drawing 3. The version number is given to the information on the address of the notice information server 6 contained in data broadcasting from broadcasting station equipment 1 with the 3rd operation gestalt. As compared with the version number processed last time, the terminal 5 which received the address information of the notice information server 6 accesses the version number of the address information at the notice information server 6 of the address, only when newer than it.

[0075] Drawing 5 is a flow chart which shows actuation of the terminal of the 3rd operation gestalt. If drawing 5 is referred to, a terminal 5 will acquire the address information of the notice information server 6, and its version number from data broadcasting first (step 301). In addition, the address acquired here is B0 and suppose that the version number is U0. Moreover, suppose that the version number of the address information processed last time is U1. Next, it judges whether the terminal 5 has acquired the address B0 of the notice information server 6 (step 302). If the address B0 is not acquirable, a terminal 5 returns to processing of step 301.

[0076] If the address B0 of the notice information server 6 is acquirable, a terminal 5 will compare the version number U0 of the address information with the last version number U1 (step 303). If the version number U0 of the address information is not newer than the last version number U1, a terminal 5 will return to processing of step 301.

[0077] If the version number U0 is newer than the last version number U1, a terminal 5 will access the notice information server 6, and will acquire download notice information (step 304). Next, a terminal 5 extracts the newest version number of a data-processing module from the download notice information (step 305).

[0078] In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1. And the data-processing module of a version number V0 is set to M0, and the data-processing module of a version number V1 is set to M1.

[0079] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 306). In addition, suppose that the address of the module

accesses the notice information server 6 shown in the address included in broadcast data, and acquires download notice information.

[0067] Drawing 4 is a flow chart which shows actuation of the terminal of the 2nd operation gestalt. If drawing 4 is referred to, a terminal 5 will acquire the address of the notice information server 6 from data broadcasting first (step 201). In addition, suppose that the address acquired here is B0. Next, it judges whether the terminal 5 has acquired the address B0 of the notice information server 6 (step 202). If the address B0 is not acquirable, a terminal 5 returns to processing of step 201.

[0068] If the address B0 of the notice information server 6 is acquirable, a terminal 5 will access the notice information server 6, and will acquire download notice information (step 203). Next, a terminal 5 extracts the newest version number from the download notice information (step 204).

[0069] In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1. And the data-processing module of a version number V0 is set to M0, and the data-processing module of a version number V1 is set to M1.

[0070] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 205). In addition, suppose that the address extracted here is A0.

[0071] Next, a terminal 5 compares the version number V0 extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 206). If a version number V0 is not newer than a version number V1, a terminal 5 returns to processing of step 101.

[0072] If a version number V0 is newer than a version number V1, a terminal 5 will access the module offer server 3 of the address A0, and will download the data-processing module M0 (step 207). Next, a terminal 5 replaces the newly downloaded data-processing module M0 with the data-processing module M1 by which current use is carried out, installs it in the data-processing program 14 (step 208), and returns to processing of step 201.

[0073] The 3rd operation gestalt of this invention is explained.

[0074] The program download structure of a system of the 3rd operation gestalt is the same as drawing 3. The version number is given to the information on the address of the notice information server 6 contained in data broadcasting from broadcasting station equipment 1 with the 3rd operation gestalt. As compared with the version number processed last time, the terminal 5 which received the address information of the notice information server 6 accesses the version number of the address information at the notice information server 6 of the address, only when newer than it.

[0075] Drawing 5 is a flow chart which shows actuation of the terminal of the 3rd operation gestalt. If drawing 5 is referred to, a terminal 5 will acquire the address information of the notice information server 6, and its version number from data broadcasting first (step 301). In addition, the address acquired here is B0 and suppose that the version number is U0. Moreover, suppose that the version number of the address information processed last time is U1. Next, it judges whether the terminal 5 has acquired the address B0 of the notice information server 6 (step 302). If the address B0 is not acquirable, a terminal 5 returns to processing of step 301.

[0076] If the address B0 of the notice information server 6 is acquirable, a terminal 5 will compare the version number U0 of the address information with the last version number U1 (step 303). If the version number U0 of the address information is not newer than the last version number U1, a terminal 5 will return to processing of step 301.

[0077] If the version number U0 is newer than the last version number U1, a terminal 5 will access the notice information server 6, and will acquire download notice information (step 304). Next, a terminal 5 extracts the newest version number of a data-processing module from the download notice information (step 305).

[0078] In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1. And the data-processing module of a version number V0 is set to M0, and the data-processing module of a version number V1 is set to M1.

[0079] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 306). In addition, suppose that the address of the module

offer server 3 extracted here is A0.

[0080] Next, a terminal 5 compares the version number V0 of the data-processing module extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 307). If the version number V0 of a data-processing module is not newer than a version number V1, a terminal 5 returns to processing of step 301.

[0081] If the version number V0 of a data-processing module is newer than a version number V1, a terminal 5 will access the module offer server 3 of the address A0, and will download the data-processing module M0 (step 308). Next, a terminal 5 replaces the newly downloaded data-processing module M0 with the data-processing module M1 by which current use is carried out, installs it in the data-processing program 14 (step 309), and returns to processing of step 301.

[0082] The 4th operation gestalt of this invention is explained.

[0083] The program download structure of a system of the 4th operation gestalt is the same as drawing 1. With the 4th operation gestalt, two or more preparation of the data-processing module is carried out for every application of the data-processing module in a terminal 5. The application of a data-processing module changes with data broadcasting shown to a user using the data-processing module, for example. Since the optimal data-processing modules for the presentation differ, two or more data-processing modules are prepared for every application by data broadcasting. The version number of a data-processing module may be managed for every application.

[0084] With the 4th operation gestalt, the application identification information of a data-processing module other than the address of the module offer server 3 with which the newest version number and its newest data-processing module of a data-processing module were stored is contained in the download notice information included in data broadcasting from broadcasting station equipment 1. Application identification information is information in order to identify each application of a data-processing module, and it is information which shows each application. A terminal 5 judges [which is shown by the application identification information contained in the acquired download notice information] whether a data-processing module is downloaded for every application.

[0085] Drawing 10 is drawing showing an example of application identification information. The description whose it, as for application identification information, shows that it is application identification information when drawing 10 is referred to (module_category in drawing :), The description (www.XYZ.com in drawing) which pinpoints a broadcasting station, the description which specifies service arrangement (aaa in drawing), It consists of description (ddd in drawing) which shows the description (bbb in drawing) which specifies a program category, the description (ccc in drawing) which specifies a communication link carrier, and a function, and each description has a layered structure which makes each hierarchy.

[0086] A data-processing module is classified into what processes data broadcasting of each broadcasting station in an example of the classification approach of a broadcasting station. A data-processing module is classified into what processes charged broadcast, and the thing which processes free broadcast in an example of the classification approach of service arrangement. In an example of the classification approach of a program category, a data-processing module is classified for every program categories, such as a news program, a sport relay broadcast, a drama, and a movie. In an example of the classification approach of a communication link carrier, a data-processing module is classified for every communication link carrier into which the terminal 5 is registered. According to this, when formats of a data-processing module differ for every communication link carrier, a different data-processing module to each communication link carrier can be specified. In an example of the classification approach of a function, a data-processing module is classified for every functions, such as a Java engine, a browser, a script engine, and a skin that is the design of a frame. In addition, the sequence of each description shown here is an example, and is not limited to this. Even if this sequence replaces, the same operation and effectiveness can be acquired.

[0087] Moreover, although shown here, various description of the theme of a broadcasting station sequence, a network identification child, a specific program name, a software vendor name, and a browser etc. may be used, and a data-processing module may be classified into others.

[0088] Drawing 6 is a flow chart which shows actuation of the terminal of the 4th operation gestalt. If drawing 6 is referred to, a terminal 5 will acquire download notice information from data broadcasting first (step 401). Next, it judges whether the terminal 5 has acquired download notice information (step 402). If download notice information is not acquirable, a terminal 5 returns to processing of step 401.

[0089] If download notice information is acquirable, a terminal 5 will extract the newest version number

offer server 3 extracted here is A0.

[0080] Next, a terminal 5 compares the version number V0 of the data-processing module extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 307). If the version number V0 of a data-processing module is not newer than a version number V1, a terminal 5 returns to processing of step 301.

[0081] If the version number V0 of a data-processing module is newer than a version number V1, a terminal 5 will access the module offer server 3 of the address A0, and will download the data-processing module M0 (step 308). Next, a terminal 5 replaces the newly downloaded data-processing module M0 with the data-processing module M1 by which current use is carried out, installs it in the data-processing program 14 (step 309), and returns to processing of step 301.

[0082] The 4th operation gestalt of this invention is explained.

[0083] The program download structure of a system of the 4th operation gestalt is the same as drawing 1. With the 4th operation gestalt, two or more preparation of the data-processing module is carried out for every application of the data-processing module in a terminal 5. The application of a data-processing module changes with data broadcasting shown to a user using the data-processing module, for example. Since the optimal data-processing modules for the presentation differ, two or more data-processing modules are prepared for every application by data broadcasting. The version number of a data-processing module may be managed for every application.

[0084] With the 4th operation gestalt, the application identification information of a data-processing module other than the address of the module offer server 3 with which the newest version number and its newest data-processing module of a data-processing module were stored is contained in the download notice information included in data broadcasting from broadcasting station equipment 1. Application identification information is information in order to identify each application of a data-processing module, and it is information which shows each application. A terminal 5 judges [which is shown by the application identification information contained in the acquired download notice information] whether a data-processing module is downloaded for every application.

[0085] Drawing 10 is drawing showing an example of application identification information. The description whose it, as for application identification information, shows that it is application identification information when drawing 10 is referred to (module_category in drawing :), The description (www.XYZ.com in drawing) which pinpoints a broadcasting station, the description which specifies service arrangement (aaa in drawing), It consists of description (ddd in drawing) which shows the description (bbb in drawing) which specifies a program category, the description (ccc in drawing) which specifies a communication link carrier, and a function, and each description has a layered structure which makes each hierarchy.

[0086] A data-processing module is classified into what processes data broadcasting of each broadcasting station in an example of the classification approach of a broadcasting station. A data-processing module is classified into what processes charged broadcast, and the thing which processes free broadcast in an example of the classification approach of service arrangement. In an example of the classification approach of a program category, a data-processing module is classified for every program categories, such as a news program, a sport relay broadcast, a drama, and a movie. In an example of the classification approach of a communication link carrier, a data-processing module is classified for every communication link carrier into which the terminal 5 is registered. According to this, when formats of a data-processing module differ for every communication link carrier, a different data-processing module to each communication link carrier can be specified. In an example of the classification approach of a function, a data-processing module is classified for every functions, such as a Java engine, a browser, a script engine, and a skin that is the design of a frame. In addition, the sequence of each description shown here is an example, and is not limited to this. Even if this sequence replaces, the same operation and effectiveness can be acquired.

[0087] Moreover, although shown here, various description of the theme of a broadcasting station sequence, a network identification child, a specific program name, a software vendor name, and a browser etc. may be used, and a data-processing module may be classified into others.

[0088] Drawing 6 is a flow chart which shows actuation of the terminal of the 4th operation gestalt. If drawing 6 is referred to, a terminal 5 will acquire download notice information from data broadcasting first (step 401). Next, it judges whether the terminal 5 has acquired download notice information (step 402). If download notice information is not acquirable, a terminal 5 returns to processing of step 401.

[0089] If download notice information is acquirable, a terminal 5 will extract the newest version number

from the download notice information (step 403).

[0090] In addition, suppose that the version number extracted here is V0. Moreover, suppose that the version number of the data-processing module used by the data-processing program 14 of the same application as the thing of a version number V0 is V1.

[0091] Next, a terminal 5 extracts the address of the module offer server 3 which offers a data-processing module from download notice information (step 404). In addition, suppose that the address extracted here is A0.

[0092] Next, a terminal 5 extracts application identification information from download notice information (step 405). In addition, suppose that the application identification information extracted here is C0.

Moreover, the data-processing module of the version number V0 in the application is set to M0, and the data-processing module of a version number V1 is set to M1.

[0093] Next, the application identification information for which the terminal 5 is used within the data-processing program 14 searches the data-processing module of C0 (step 406). Next, a terminal 5 judges whether application identification information has the data-processing module of C0 in the data-processing program 14 (step 407).

[0094] If the data-processing module of C0 has application identification information in the data-processing program 14, the application identification information within the data-processing program 14 will compare the version number V1 of the data-processing module of C0 with the version number V0 by which the terminal 5 was extracted from download notice information (step 408). If the version information V0 extracted from download notice information is not newer than the version information V1 of the data-processing module within the data-processing program 14, a terminal 5 returns to processing of step 401.

[0095] By the judgment of step 408, when version information V0 is newer than version information V1, or when the data-processing module of C0 does not have application identification information into the data-processing program 14 at the judgment of step 407, a terminal 5 is accessed at the module offer server 3 of the address A0, and the data-processing module M0 is downloaded (step 409). Next, a terminal 5 installs the data-processing module M0 in the data-processing program 14 (step 410), and returns to processing of step 401.

[0096] Since according to this operation gestalt two or more data-processing modules are prepared according to the various applications in each user or each terminal, only what is needed for each user or each terminal is chosen easily and it can download efficiently, browser application in which various functions are required and it deals can be upgraded efficiently, therefore the fall of actuation responsibility and the increment in a user's pocketbook burden can be reduced.

[0097] Moreover, according to this operation gestalt, since a data-processing module can be separately prepared according to various applications, it is not necessary to create the general-purpose program according to various demands, and possibility that fault will arise can be reduced.

[0098] The 5th operation gestalt of this invention is explained.

[0099] The program download structure of a system of the 5th operation gestalt is the same as drawing 1. In the 5th operation gestalt, the version number of a data-processing module is managed for every application like the 4th operation gestalt.

[0100] And a terminal 5 judges whether the data-processing module of the application is downloaded, when there is no data-processing module of the application shown by the application identification information extracted from download notice information into the data-processing program 14. This judgment is made according to the various set points within the terminal 5 set as the user. For example, if the class of data broadcasting a user expects presentation is set up, it can be judged that the data-processing module suitable for the application of presentation of data broadcasting set up should be downloaded. Moreover, the purport which should choose whether it downloads or not may be shown to a user and you may judge whether it downloads according to a user's input. At this time, the user is [what is necessary] just to set up or input and is easy by the class of data broadcasting which does not set up or input but wishes for the class of data-processing module.

[0101] Drawing 7 is a flow chart which shows actuation of the terminal 5 of the 5th operation gestalt. If drawing 7 is referred to, a terminal 5 will acquire download notice information from data broadcasting first (step 501). Next, it judges whether the terminal 5 has acquired download notice information (step 502). If download notice information is not acquirable, a terminal 5 returns to processing of step 501.

[0102] If download notice information is acquirable, a terminal 5 will extract the newest version number

from the download notice information (step 403).

[0090] In addition, suppose that the version number extracted here is V0. Moreover, suppose that the version number of the data-processing module used by the data-processing program 14 of the same application as the thing of a version number V0 is V1.

[0091] Next, a terminal 5 extracts the address of the module offer server 3 which offers a data-processing module from download notice information (step 404). In addition, suppose that the address extracted here is A0.

[0092] Next, a terminal 5 extracts application identification information from download notice information (step 405). In addition, suppose that the application identification information extracted here is C0. Moreover, the data-processing module of the version number V0 in the application is set to M0, and the data-processing module of a version number V1 is set to M1.

[0093] Next, the application identification information for which the terminal 5 is used within the data-processing program 14 searches the data-processing module of C0 (step 406). Next, a terminal 5 judges whether application identification information has the data-processing module of C0 in the data-processing program 14 (step 407).

[0094] If the data-processing module of C0 has application identification information in the data-processing program 14, the application identification information within the data-processing program 14 will compare the version number V1 of the data-processing module of C0 with the version number V0 by which the terminal 5 was extracted from download notice information (step 408). If the version information V0 extracted from download notice information is not newer than the version information V1 of the data-processing module within the data-processing program 14, a terminal 5 returns to processing of step 401.

[0095] By the judgment of step 408, when version information V0 is newer than version information V1, or when the data-processing module of C0 does not have application identification information into the data-processing program 14 at the judgment of step 407, a terminal 5 is accessed at the module offer server 3 of the address A0, and the data-processing module M0 is downloaded (step 409). Next, a terminal 5 installs the data-processing module M0 in the data-processing program 14 (step 410), and returns to processing of step 401.

[0096] Since according to this operation gestalt two or more data-processing modules are prepared according to the various applications in each user or each terminal, only what is needed for each user or each terminal is chosen easily and it can download efficiently, browser application in which various functions are required and it deals can be upgraded efficiently, therefore the fall of actuation responsibility and the increment in a user's pocketbook burden can be reduced.

[0097] Moreover, according to this operation gestalt, since a data-processing module can be separately prepared according to various applications, it is not necessary to create the general-purpose program according to various demands, and possibility that fault will arise can be reduced.

[0098] The 5th operation gestalt of this invention is explained.

[0099] The program download structure of a system of the 5th operation gestalt is the same as drawing 1. In the 5th operation gestalt, the version number of a data-processing module is managed for every application like the 4th operation gestalt.

[0100] And a terminal 5 judges whether the data-processing module of the application is downloaded, when there is no data-processing module of the application shown by the application identification information extracted from download notice information into the data-processing program 14. This judgment is made according to the various set points within the terminal 5 set as the user. For example, if the class of data broadcasting a user expects presentation is set up, it can be judged that the data-processing module suitable for the application of presentation of data broadcasting set up should be downloaded. Moreover, the purport which should choose whether it downloads or not may be shown to a user and you may judge whether it downloads according to a user's input. At this time, the user is [what is necessary] just to set up or input and is easy by the class of data broadcasting which does not set up or input but wishes for the class of data-processing module.

[0101] Drawing 7 is a flow chart which shows actuation of the terminal 5 of the 5th operation gestalt. If drawing 7 is referred to, a terminal 5 will acquire download notice information from data broadcasting first (step 501). Next, it judges whether the terminal 5 has acquired download notice information (step 502). If download notice information is not acquirable, a terminal 5 returns to processing of step 501.

[0102] If download notice information is acquirable, a terminal 5 will extract the newest version number

from the download notice information (step 503).

[0103] In addition, suppose that the version number extracted here is V0. Moreover, suppose that the version number of the data-processing module used by the data-processing program 14 of the same application as the thing of a version number V0 is V1.

[0104] Next, a terminal 5 extracts the address of the module offer server 3 which offers a data-processing module from download notice information (step 504). In addition, suppose that the address extracted here is A0.

[0105] Next, a terminal 5 extracts application identification information from download notice information (step 505). In addition, suppose that the application identification information extracted here is C0. Moreover, the data-processing module of the version number V0 in the application is set to M0, and the data-processing module of a version number V1 is set to M1.

[0106] Next, the application identification information for which the terminal 5 is used within the data-processing program 14 searches the data-processing module of C0 (step 506). Next, a terminal 5 judges whether application identification information has the data-processing module of C0 in the data-processing program 14 (step 507).

[0107] If the data-processing module of C0 has application identification information in the data-processing program 14, the application identification information within the data-processing program 14 will compare the version number V1 of the data-processing module of C0 with the version number V0 by which the terminal 5 was extracted from download notice information (step 508). If the version information V0 extracted from download notice information is not newer than the version information V1 of the data-processing module within the data-processing program 14, a terminal 5 returns to processing of step 401.

[0108] By the judgment of step 507, when the data-processing module of C0 does not have application identification information into the data-processing program 14, it judges whether a terminal 5 downloads the data-processing module of the application (step 509). The decision approach at this time is as having mentioned above. When it judges that it does not download, a terminal 5 returns to processing of step 501.

[0109] By the judgment of step 508, when it judges that it downloads at step 509, when version information V0 is newer than version information V1, a terminal 5 accesses the module offer server 3 of the address A0, and downloads the data-processing module M0 (step 510). Next, a terminal 5 installs the data-processing module M0 in the data-processing program 14 (step 511), and returns to processing of step 501.

[0110] The 6th operation gestalt of this invention is explained.

[0111] Drawing 8 is the block diagram showing the program download structure of a system of the 6th operation gestalt. The program download system of the 6th operation gestalt has version comparison (flag F) 16-1, 16-2, ..., 16-n corresponding to each of the data-processing module 15-1 contained in the data-processing program 14, 15-2, ..., 15-n.

[0112] The version comparison flag 16-1, 16-2, ..., 16-n are flags with which it is set up whether the thing of a version number newer than the data-processing module already downloaded about each corresponding data-processing module 15-1, 15-2, ..., 15-n exists in the module offer server 3. The set and reset of the version control flag 16-1, 16-2, ..., 16-n are made by the Management Department 13.

[0113] Moreover, if the version comparison flag corresponding to the data-processing module is set when activation of one of data-processing modules is needed, or when actuation of a user receives assignment, the Management Department 13 will download the newest data-processing module, and will install in the data-processing program 14.

[0114] Drawing 9 is a flow chart which shows the actuation when acquiring the download notice information on the terminal of the 6th operation gestalt. If drawing 9 is referred to, a terminal 5 will acquire download notice information first (step 601). Next, it judges whether the terminal 5 has acquired download notice information (step 602). If download notice information is not acquirable, a terminal 5 returns to processing of step 601.

[0115] If download notice information is acquirable, a terminal 5 will extract the newest version number from the download notice information (step 603). In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1.

[0116] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 604). In addition, suppose that the address extracted here

from the download notice information (step 503).

[0103] In addition, suppose that the version number extracted here is V0. Moreover, suppose that the version number of the data-processing module used by the data-processing program 14 of the same application as the thing of a version number V0 is V1.

[0104] Next, a terminal 5 extracts the address of the module offer server 3 which offers a data-processing module from download notice information (step 504). In addition, suppose that the address extracted here is A0.

[0105] Next, a terminal 5 extracts application identification information from download notice information (step 505). In addition, suppose that the application identification information extracted here is C0.

Moreover, the data-processing module of the version number V0 in the application is set to M0, and the data-processing module of a version number V1 is set to M1.

[0106] Next, the application identification information for which the terminal 5 is used within the data-processing program 14 searches the data-processing module of C0 (step 506). Next, a terminal 5 judges whether application identification information has the data-processing module of C0 in the data-processing program 14 (step 507).

[0107] If the data-processing module of C0 has application identification information in the data-processing program 14, the application identification information within the data-processing program 14 will compare the version number V1 of the data-processing module of C0 with the version number V0 by which the terminal 5 was extracted from download notice information (step 508). If the version information V0 extracted from download notice information is not newer than the version information V1 of the data-processing module within the data-processing program 14, a terminal 5 returns to processing of step 401.

[0108] By the judgment of step 507, when the data-processing module of C0 does not have application identification information into the data-processing program 14, it judges whether a terminal 5 downloads the data-processing module of the application (step 509). The decision approach at this time is as having mentioned above. When it judges that it does not download, a terminal 5 returns to processing of step 501.

[0109] By the judgment of step 508, when it judges that it downloads at step 509, when version information V0 is newer than version information V1, a terminal 5 accesses the module offer server 3 of the address A0, and downloads the data-processing module M0 (step 510). Next, a terminal 5 installs the data-processing module M0 in the data-processing program 14 (step 511), and returns to processing of step 501.

[0110] The 6th operation gestalt of this invention is explained.

[0111] Drawing 8 is the block diagram showing the program download structure of a system of the 6th operation gestalt. The program download system of the 6th operation gestalt has version comparison (flag F) 16-1, 16-2, ..., 16-n corresponding to each of the data-processing module 15-1 contained in the data-processing program 14, 15-2, ..., 15-n.

[0112] The version comparison flag 16-1, 16-2, ..., 16-n are flags with which it is set up whether the thing of a version number newer than the data-processing module already downloaded about each corresponding data-processing module 15-1, 15-2, ..., 15-n exists in the module offer server 3. The set and reset of the version control flag 16-1, 16-2, ..., 16-n are made by the Management Department 13.

[0113] Moreover, if the version comparison flag corresponding to the data-processing module is set when activation of one of data-processing modules is needed, or when actuation of a user receives assignment, the Management Department 13 will download the newest data-processing module, and will install in the data-processing program 14.

[0114] Drawing 9 is a flow chart which shows the actuation when acquiring the download notice information on the terminal of the 6th operation gestalt. If drawing 9 is referred to, a terminal 5 will acquire download notice information first (step 601). Next, it judges whether the terminal 5 has acquired download notice information (step 602). If download notice information is not acquirable, a terminal 5 returns to processing of step 601.

[0115] If download notice information is acquirable, a terminal 5 will extract the newest version number from the download notice information (step 603). In addition, suppose that the version number extracted here is V0. Moreover, the version number of the data-processing module used by the data-processing program 14 presupposes that it is V1.

[0116] Next, a terminal 5 acquires the address of the module offer server 3 which offers a data-processing module from download notice information (step 604). In addition, suppose that the address extracted here

is A0.

[0117] Next, a terminal 5 compares the version number V0 extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 605). Next, a terminal 5 stores the comparison result of a version number in a version comparison flag (step 606). In addition, suppose that the version comparison flag stored here is F1.

[0118] When V0 is newer than V1, the version comparison flag F1 is set (for example, "1"). Moreover, when V0 is not newer than V1, the version comparison flag F1 is reset (for example, "0").

[0119] When download notice information is received, a version comparison flag is stored as mentioned above. And when activation of a data-processing module is needed, or when actuation of a user receives assignment, a terminal 5 judges whether it downloads or not with reference to a version comparison flag.

[0120] Since according to this operation gestalt it downloads when it records that there was version up for every data-processing module with a version comparison flag and the data-processing module is needed, or when it is directed to a user, actuation responsibility is not reduced by useless download, or a pocketbook burden is not made to increase. For example, the data-processing module which is not used at all depending on a user or a terminal may exist, and it is not said about such [in that case] a data-processing module that only version up is performed futilely.

[0121] Moreover, since the stage to download a data-processing module can be shifted every terminal 5, it is effective in the ability to prevent that access concentrates to the module offer server 3 from many terminals 5 which received the notice of version up by data broadcasting.

[0122]

[Effect of the Invention] Since according to this invention a data-processing module is briefly managed by old and new [of a version number] and a version number is notified to a terminal by broadcast, efficient download is realized without being able to judge easily whether the version number notified by broadcast should be downloaded by comparing with a version number in use, and shortening the time amount concerning a communication link, and requiring skill of a user.

[0123] Moreover, various functions can be made available to a user in the newest condition, suppressing the time and pocketbook burden of download low by adding and updating a data-processing program for two or more data-processing modules of every.

[0124] Moreover, since two or more data-processing modules are prepared according to the various applications in each user or each terminal, only what is needed for each user or each terminal is chosen easily and it can download efficiently, the data-processing program in which various functions are required and it deals can be upgraded efficiently, therefore the fall of actuation responsibility and the increment in a user's pocketbook burden can be reduced.

[0125] Moreover, since the data-processing module according to various applications can be prepared separately, it is not necessary to create the general-purpose program according to various demands, and possibility that fault will arise can be reduced.

[0126] Moreover, a user is [that what is necessary is just to set up or input according to the class of data broadcasting which does not set up or input but wishes for the class of data-processing module] easy to operate it.

[0127] Moreover, since the stage to download a data-processing module can be shifted for every broadcast communication fusion terminal by recording on memory that there was version up for every data-processing module by the comparison result, and immediately not downloading, but downloading behind, it can prevent that access concentrates to a module offer server from many broadcast communication fusion terminals which received the notice of version up by data broadcasting.

[0128] Moreover, since it downloads when it records on memory that there was version up for every data-processing module by the comparison result, and it does not immediately download but activation of the data-processing module is needed, or when there are directions of a user, actuation responsibility is not reduced by useless download, or a pocketbook burden is not made to increase.

[Translation done.]

is A0.

[0117] Next, a terminal 5 compares the version number V0 extracted from download notice information with the version number V1 of the data-processing module used within the data-processing program 14 (step 605). Next, a terminal 5 stores the comparison result of a version number in a version comparison flag (step 606). In addition, suppose that the version comparison flag stored here is F1.

[0118] When V0 is newer than V1, the version comparison flag F1 is set (for example, "1"). Moreover, when V0 is not newer than V1, the version comparison flag F1 is reset (for example, "0").

[0119] When download notice information is received, a version comparison flag is stored as mentioned above. And when activation of a data-processing module is needed, or when actuation of a user receives assignment, a terminal 5 judges whether it downloads or not with reference to a version comparison flag.

[0120] Since according to this operation gestalt it downloads when it records that there was version up for every data-processing module with a version comparison flag and the data-processing module is needed, or when it is directed to a user, actuation responsibility is not reduced by useless download, or a pocketbook burden is not made to increase. For example, the data-processing module which is not used at all depending on a user or a terminal may exist, and it is not said about such [in that case] a data-processing module that only version up is performed futilely.

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[0122] [Effect of the Invention] Since according to this invention a data-processing module is briefly managed by old and new [of a version number] and a version number is notified to a terminal by broadcast, efficient download is realized without being able to judge easily whether the version number notified by broadcast should be downloaded by comparing with a version number in use, and shortening the time amount concerning a communication link, and requiring skill of a user.

[0123] Moreover, various functions can be made available to a user in the newest condition, suppressing the time and pocketbook burden of download low by adding and updating a data-processing program for two or more data-processing modules of every.

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[Translation done.]

*** NOTICES ***

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1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.

3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the program download structure of a system of the 1st operation gestalt.

[Drawing 2] It is the flow chart which shows actuation of the terminal of the 1st operation gestalt.

[Drawing 3] It is the block diagram showing the program download structure of a system of the 2nd operation gestalt.

[Drawing 4] It is the flow chart which shows actuation of the terminal of the 2nd operation gestalt.

[Drawing 5] It is the flow chart which shows actuation of the terminal of the 3rd operation gestalt.

[Drawing 6] It is the flow chart which shows actuation of the terminal of the 4th operation gestalt.

[Drawing 7] It is the flow chart which shows actuation of the terminal 5 of the 5th operation gestalt.

[Drawing 8] It is the block diagram showing the program download structure of a system of the 6th operation gestalt.

[Drawing 9] It is the flow chart which shows the actuation when acquiring the download notice information on the terminal of the 6th operation gestalt.

[Drawing 10] It is drawing showing an example of application identification information.

[Description of Notations]

1 Broadcasting Station Equipment

2 Contents Distribution Server

3 Module Offer Server

4 Network

5 Terminal

6 Notice Information Server

11 Digital-Broadcasting Processing Section

12 Management Department

13 Communications Processing Section

14 Data-Processing Program

15-1 - 15-n Data-processing module

16-1 - 16-n Data comparison flag

101-107,201-208,301-309,401-410,501-511,601-606 Step

[Translation done.]

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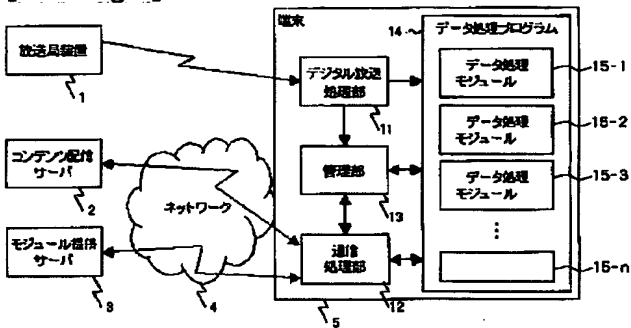
1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.

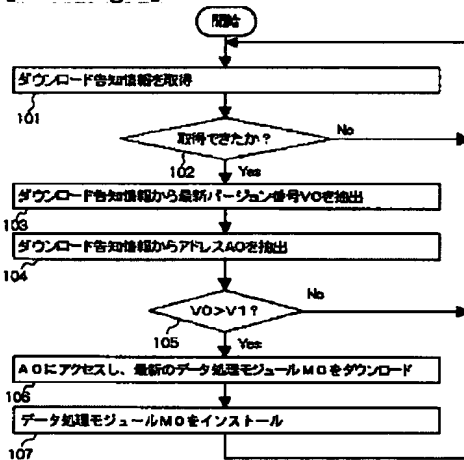
3.In the drawings, any words are not translated.

DRAWINGS

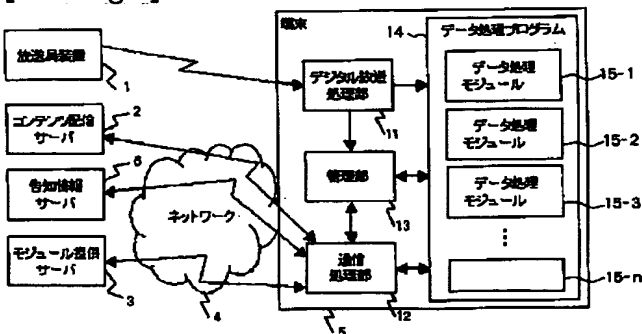
[Drawing 1]



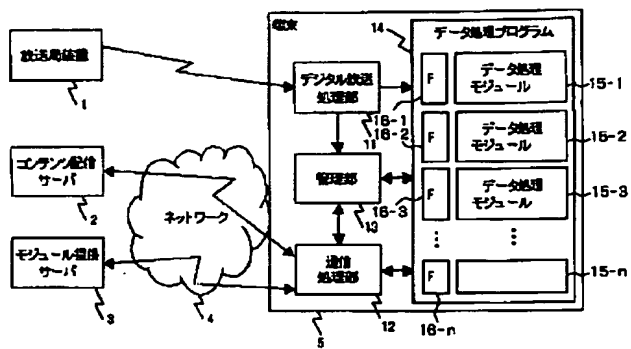
[Drawing 2]



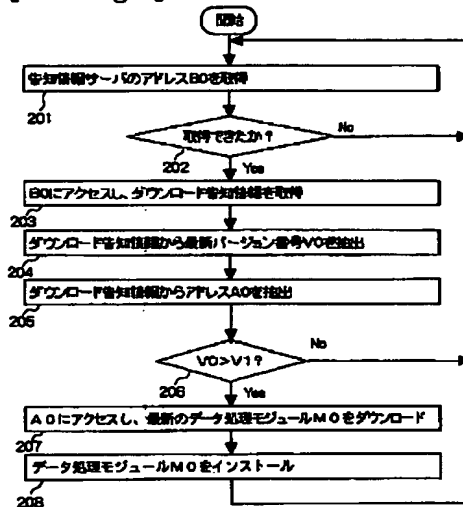
[Drawing 3]



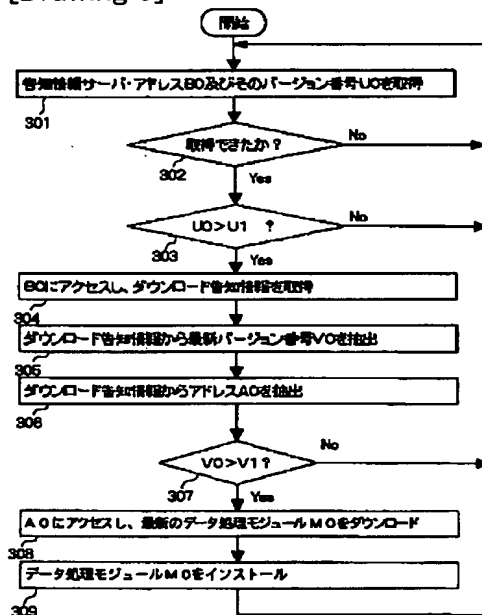
[Drawing 8]



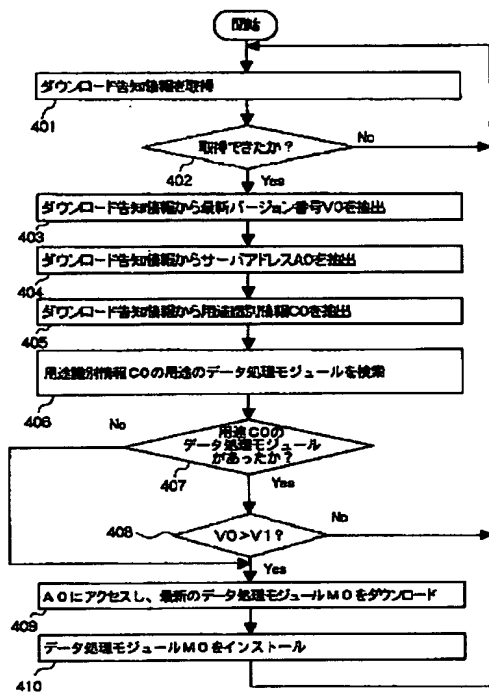
[Drawing 4]



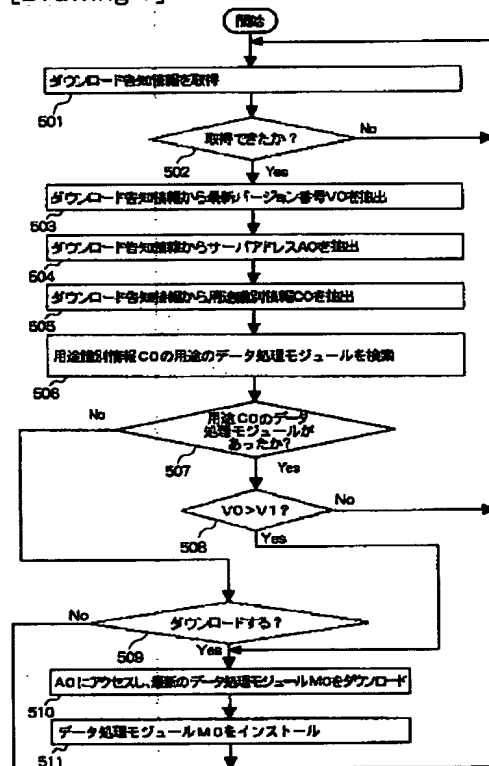
[Drawing 5]



[Drawing 6]



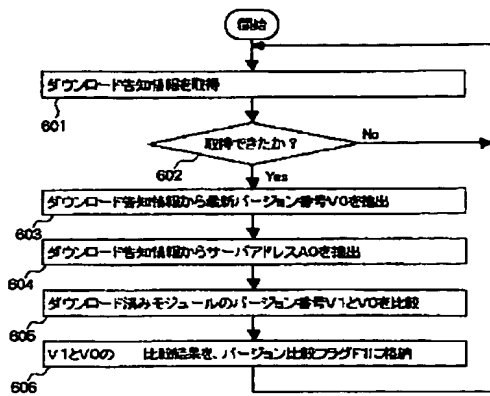
[Drawing 7]



[Drawing 10]

module_category:/www.XYZ.com/aaa/bbb/ccddddd/

[Drawing 9]



[Translation done.]

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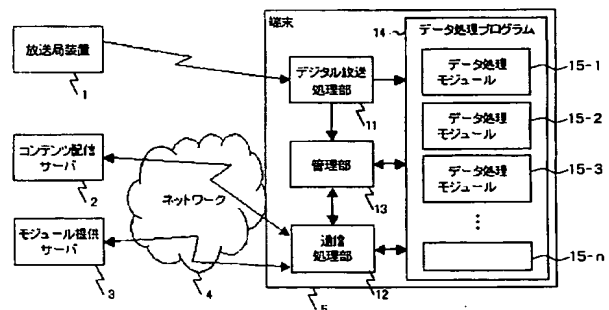
最終頁に続く

(54) 【発明の名称】 プログラムダウンロードシステム、放送通信融合端末およびプログラムダウンロード方法

(57) 【要約】

【課題】 放送通信融合端末のブラウザソフトウェアのダウンロード処理を簡易かつ迅速にする。

【解決手段】 モジュール提供サーバ3は、予め、データ処理プログラムの一部の機能を実現するデータ処理モジュールおよびそのバージョン番号を格納している。放送局装置1は、最新のデータ処理モジュールとそのバージョン番号が格納されているモジュール提供サーバ3のアドレスとを含むダウンロード告知情報をデータ放送と共に放送する。端末5は、ダウンロード告知情報をデータ放送と共に受信し、分離して解析する。端末5は、最新のバージョン番号が現在使用されているもののバージョン番号より新しいとき最新のバージョン番号のデータ処理モジュールをモジュール提供サーバ3に要求する。モジュール提供サーバ3は、端末5から要求があると、要求されたデータ処理モジュールをその端末5にダウンロードする。



【特許請求の範囲】

【請求項1】 デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウンロードシステムであって、

前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされ、該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しており、前記端末から要求があると、要求されたデータ処理モジュールを該端末にダウンロードするモジュール提供サーバと、データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバのアドレスとを含むダウンロード告知情報を前記データ放送と共に放送する放送局装置を有するプログラムダウンロードシステム。

【請求項2】 デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウンロードシステムであって、

前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされ、該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しており、前記端末から要求があると、要求されたデータ処理モジュールを該端末にダウンロードするモジュール提供サーバと、データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバを示す第1のアドレスとを含むダウンロード告知情報を格納しており、アクセスしてきた前記端末から要求があると、該端末に前記ダウンロード告知情報を送信する告知情報サーバと、

前記ダウンロード告知情報を送信する告知情報サーバを示す第2のアドレスを前記データ放送と共に放送する放送局装置を有するプログラムダウンロードシステム。

【請求項3】 前記データ処理モジュールは用途毎に複数あり、前記ダウンロード告知情報に含まれている最新のバージョン番号は、複数の前記データ処理モジュールのそれぞれについて存在し、前記バージョン告知情報にはさらに前記各用途を識別するための用途識別情報が含まれている、請求項1または2記載のプログラムダウンロードシステム。

【請求項4】 前記各用途は、前記各データ処理モジュールにより前記ユーザに提示されるべきデータ放送の属性である、請求項3記載のプログラムダウンロードシステム。

【請求項5】 前記用途識別情報が複数の階層からなる階層構造となっている、請求項3または4記載のプログラムダウンロードシステム。

【請求項6】 前記バージョン番号は前記用途毎に管理されている、請求項3～5のいずれか1項に記載のプログラムダウンロードシステム。

【請求項7】 デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった放送通信融合端末であって、

10 前記データ放送をユーザに提示するためのデータ処理プログラムにインストールされ該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されているネットワーク上のアドレスとを含むダウンロード告知情報を前記データ放送と共に受信し、分離して解析するデジタル放送処理手段と、前記最新のバージョン番号が現在使用されているデータ処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールをダウンロードすることを決定し、該データ処理モジュールが取得されると該データ処理モジュールを前記データ処理プログラムにインストールする管理手段と、前記管理手段で前記データ処理モジュールのダウンロードが決定されると、前記データ処理モジュールおよびそのバージョン番号を格納しているモジュール提供サーバに前記アドレスを用いてアクセスし、前記データ処理モジュールをダウンロードにより取得する通信処理手段を有する放送通信融合端末。

30 【請求項8】 デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった放送通信融合端末であって、

前記データ放送をユーザに提示するためのデータ処理プログラムにインストールされ、該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されているネットワーク上の第1のアドレスとを含むダウンロード告知情報の公開されているネットワーク上の第2のアドレスを、前記データ放送と共に受信し、分離して解析するデジタル放送処理手段と、

40 前記最新のバージョン番号が現在使用されているデータ処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールをダウンロードすることを決定し、該データ処理モジュールが取得されると該データ処理モジュールを前記データ処理プログラムにインストールする管理手段と、

前記第2のアドレスが得られるとそれを用いて、前記ダウンロード告知情報を格納している告知情報サーバにアクセスして前記ダウンロード告知情報を取得し、該ダウンロード告知情報から前記データ処理モジュールの最新のバージョン番号と前記第1のアドレスとを取り出し、

また、前記管理手段で前記データ処理モジュールのダウンロードが決定されると、前記データ処理モジュールおよびそのバージョン番号を格納しているモジュール提供サーバに前記第1のアドレスを用いてアクセスし、前記データ処理モジュールをダウンロードにより取得する通信処理手段を有する放送通信融合端末。

【請求項9】 前記第2のアドレスにはバージョン番号が付与されており、前記第2のアドレスが得られると、前記通信処理手段は、得られた前記第2のアドレスのバージョン番号が、前回処理したもののバージョン番号より新しいときのみ、前記第2のアドレスを用いて前記告知情報サーバにアクセスする、請求項8記載の放送通信融合端末。

【請求項10】 前記データ処理モジュールは用途毎に複数あり、前記ダウンロード告知情報に含まれている最新のバージョン番号は、複数の前記データ処理モジュールのそれぞれについて存在し、前記ダウンロード告知情報にはさらに前記各用途を識別するための用途識別情報が含まれている、請求項7～9のいずれか1項に記載の放送通信融合端末。

【請求項11】 前記各用途は、前記各データ処理モジュールにより前記ユーザに提示されるべきデータ放送の属性である、請求項10記載の放送通信融合端末。

【請求項12】 前記用途識別情報が複数の階層からなる階層構造となっている、請求項10または11記載の放送通信融合端末。

【請求項13】 前記バージョン番号は前記用途毎に管理されている、請求項10～12のいずれか1項に記載の放送通信融合端末。

【請求項14】 前記ダウンロード告知情報からいずれかのデータ処理モジュールの最新のバージョン番号が取得されると、前記管理手段が、該データ処理モジュールの最新のバージョン番号と現在使用されているもののバージョン番号と新旧を比較し、比較結果をメモリに一旦格納した後、前記比較結果において前記最新のバージョン番号が前記現在使用されているバージョン番号より新しければ、前記最新のバージョンの前記データ処理モジュールをダウンロードすることを決定する、請求項13記載の放送通信融合端末。

【請求項15】 前記管理手段は、前記データ処理モジュールを実行する必要が生じたときに、前記比較結果において前記最新のバージョン番号が前記現在使用されているバージョン番号より新しければ、前記最新のバージョンの前記データ処理モジュールをダウンロードすることを決定する、請求項14記載の放送通信融合端末。

【請求項16】 前記管理手段は、前記ユーザから指示があったとき、前記比較結果において前記最新のバージョン番号が前記現在使用されているバージョン番号より新しければ、前記最新のバージョンの前記データ処理モジュールをダウンロードすることを決定する、請求項1

4または15記載の放送通信融合端末。

【請求項17】 モジュール提供サーバおよび放送局装置を有するプログラムダウンロードシステムから、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウンロード方法であって、前記モジュール提供サーバにおいて、

予め、前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされて該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しておくステップと、

前記放送局装置において、

前記データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバのアドレスとを含むダウンロード告知情報を前記データ放送と共に放送するステップと、

前記端末において、

20 前記ダウンロード告知情報を前記データ放送と共に受信し、分離して解析するステップと、

前記最新のバージョン番号が現在使用されているデータ処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールを前記モジュール提供サーバに要求するステップと、

前記モジュール提供サーバにおいて、

前記端末から要求があると、要求された前記データ処理モジュールを該端末にダウンロードするステップとを有するプログラムダウンロード方法。

30 【請求項18】 モジュール提供サーバおよび放送局装置を有するプログラムダウンロードシステムから、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウンロード方法であって、

前記モジュール提供サーバにおいて、

予め、前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされて該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しておくステップと、

前記放送局装置において、

前記データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバのアドレスとを含むダウンロード告知情報を前記データ放送と共に放送するステップと、

前記端末において、

前記ダウンロード告知情報を前記データ放送と共に受信し、分離して解析するステップと、

50 前記最新のバージョン番号が現在使用されているデータ

処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールを前記モジュール提供サーバに要求するステップと、
前記モジュール提供サーバにおいて、
前記端末から要求があると、要求された前記データ処理モジュールを該端末にダウンロードするステップとを有するプログラムダウンロード方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、デジタル放送に含まれる映像放送及びデータ放送を受信する放送受信端末においてデータ放送を解釈して提示するブラウザ・アプリケーションのダウンロードに関し、特に、端末で使用するブラウザ・アプリケーションのバージョンを管理するシステムに関する。

【0002】

【従来の技術】従来、データ放送を受信するためのブラウザ・ソフトウェアの最新バージョンを端末にダウンロードするのに、端末はブラウザ・ソフトウェアを提供しているサーバと双方向通信して所望のブラウザ・ソフトウェアを取得していた。端末とサーバとの間の双方向通信により所望のブラウザ・ソフトウェアを選択するには、通常、何段階かの操作を必要とする。そのため、ブラウザ・ソフトウェアの取得には時間がかかり、それに伴って費用もかかっていた。

【0003】データ放送のためのブラウザ・ソフトウェアの取得に放送を利用することで時間の短縮するのに、特開平11-098474号公報に記載されたデジタル放送ダウンロードシステムを利用することができる。特開平11-098474号公報に記載されたデジタル放送ダウンロードシステムでは、メーカーや機種、ソフトウェアのバージョン等、ダウンロードデータを識別するための識別データに加えて、ダウンロードデータに関連する個別データがダウンロードデータに付加されて受信機に送信される。受信機は、受信したダウンロードデータから個別データを分離してメッセージとして表示する。

【0004】個別データには、受信者に対するメッセージデータと、ダウンロードソフトウェア種別に関する情報が含まれている。これらの情報はダウンロード処理の選択を受信者に促すものである。受信者がそれを参照してダウンロード処理を選択することにより、ダウンロードにかかる時間が短縮される。

【0005】すなわち、特開平11-098474号公報に記載されたデジタル放送ダウンロードシステムでは、ダウンロードデータに関する各種情報が受信者に提示される。そして、各種情報に基づく受信者の指示に従って、ダウンロード処理が切り替えられることにより、ダウンロードの効率化が図られる。

【0006】その他、特開2000-207218号公

報に記載されたバージョンアップ発生時の通知方法は、中央局から車載端末へ無線通信などによりプログラムを配信する通信システムに関するものである。特開平2000-207218号公報に記載された方法によれば、中央局にてプログラムのバージョンアップが発生すると、電文、電子メールもしくは放送によってその旨が車載端末に迅速かつ確実に通知される。

【0007】そして、車載端末にて新旧のバージョンが比較されることによりダウンロードする可否が容易に判断できる。

【0008】特開2000-293365号公報に記載されたプログラム構成管理装置は、プログラムをダウンロードして更新する通信端末機器に備えられる。プログラム構成管理装置は、ダウンロードされたプログラムを最新バージョンだけでなく過去のバージョンも含めて記憶する。そして、プログラム構成管理装置は、新たにダウンロードされたプログラムにバグがあった場合や、プログラムを構成するモジュールが個別にダウンロードされ、モジュール間に不適合が生じた場合などに過去のバージョンのプログラムに戻すことで通信端末機器のプログラム動作を維持する。

【0009】特開2001-016512号公報に記載されたデジタル放送受信機は、プログラムの書き換えが可能な受信機であるが、その中央演算装置が初期起動時に実行するプログラムは書き換え不可能領域に記録されている。起動時に実行されるプログラムには、最低限の起動および動作を行う処理が含まれている。

【0010】書き換え可能な領域のプログラムが何らかの原因で破壊されても、デジタル放送受信機は、書き換え不可能領域のプログラムにより最低限の起動および動作を行うことができる。

【0011】すなわち、特開2000-293365号公報に記載されたプログラム構成管理装置、または特開2001-016512号公報に記載されたデジタル放送受信機によれば、ダウンロードしたプログラムに不具合があった場合などにも端末の動作が維持され、また不具合のないプログラムを再度ダウンロードし直すことができる。

【0012】特開平08-195690号公報に記載された、多重放送を受信し、情報処理装置に送出する多重放送送受信装置は、多重放送を受信すると、予め要求されている種類の情報だけを選択して情報処理装置に送信する。したがって、情報処理装置は、多重放送に含まれる複数の情報の中から、必要なものだけを効率的に得ることができる。

【0013】

【発明が解決しようとする課題】上述した従来技術は、デジタル放送の映像放送及びデータ放送を受信する放送受信端末においてデータ放送を解釈して提示するブラウザ・アプリケーションのダウンロードに適用することが

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できるが、これらの従来技術を適用したシステムは以下に示される問題点を有する。

【0014】特開平11-098474号公報のデジタル放送ダウンロードシステムでは、ダウンロードデータに含まれる各種情報は多岐にわたる。そのため、それら各種情報から容易にダウンロード処理を選択することができず、受信者がそれらの情報に基づいて総合的に判断する必要がある。そのため、効率的なダウンロードを実現するためには、受信者は、ダウンロードに関してある程度熟練している必要がある。

【0015】特開2000-207218号公報に記載されたバージョンアップ発生時の通知方法によれば、ユーザに問い合わせることなく、端末がプログラムをダウンロードするか否か判断できるが、複数のモジュールからなるような複雑なプログラムの場合に各モジュール毎のバージョンアップを通知できないため、モジュール毎の追加、変更を端末に効率的に適用することができなかった。また、各ユーザや各端末における多様な用途に応じて、プログラムの必要な部分だけを効率的にダウンロードして利用するということができなかった。

【0016】また、プログラムのバージョンアップがあると、それが端末に通知され、その度にダウンロードが発生するため、必要としないダウンロードにより端末の操作応答性が低下したり、金銭的な負担が増したりしていた。

【0017】特開2000-293365号公報に記載されたプログラム構成管理装置、または特開2001-016512号公報に記載されたデジタル放送受信機によればダウンロードした不具合があった場合などにも端末の動作を維持させることが可能だが、様々な端末や利用者の要求に汎用的に応じる複雑なプログラムに生じる不具合を減らすことはできなかった。

【0018】特開平08-195690号公報に記載された多重放送受信装置は、必要な情報だけを得るためには、予め必要な情報の種類を定めておく必要がある。ブラウザ・アプリケーションは、そのときどきのユーザの操作により必要とする機能が変わるため、特開平08-195690号公報に記載されたように、予め希望するモジュールを設定しておくことは困難であった。

【0019】本発明の目的は、放送通信融合端末のブラウザソフトウェアのダウンロード処理を簡易かつ迅速にすることである。

【0020】本発明の他の目的は、放送通信融合端末において、データ処理プログラムの様々な機能を最新の状態で容易に利用可能とすることである。

【0021】本発明のさらに他の目的は、利用者に対して金銭的な負担と装置の応答性劣化が発生するのを防ぐことである。

【0022】

【課題を解決するための手段】上記目的を達成するため

に、本発明のプログラムダウンロードシステムは、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウンロードシステムであって、前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされ、該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しており、前記端末から要求があると、要求されたデータ処理モジュールを該端末にダウンロードするモジュール提供サーバと、データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバのアドレスを含むダウンロード告知情報を前記データ放送と共に放送する放送局装置を有している。

【0023】したがって、データ処理モジュールがバージョン番号の新旧により簡潔に管理され、バージョン番号は放送により端末に通知されるので、放送で通知されるバージョン番号を、使用中のバージョン番号と比較することによりダウンロードすべきか否か容易に判断することができる。

【0024】また、データ処理プログラムを複数のデータ処理モジュール毎に追加、更新することができる。

【0025】本発明の他のプログラムダウンロードシステムは、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウンロードシステムであって、前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされ、該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しており、前記端末から要求があると、要求されたデータ処理モジュールを該端末にダウンロードするモジュール提供サーバと、データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバを示す第1のアドレスを含むダウンロード告知情報を格納しており、アクセスしてきた前記端末から要求があると、該端末に前記ダウンロード告知情報を送信する告知情報サーバと、前記ダウンロード告知情報を送信する告知情報サーバを示す第2のアドレスを前記データ放送と共に放送する放送局装置を有している。

【0026】なお、前記データ処理モジュールは用途毎に複数あり、前記ダウンロード告知情報に含まれている最新のバージョン番号は、複数の前記データ処理モジュールのそれぞれについて存在し、前記バージョン告知情報にはさらに前記各用途を識別するための用途識別情報が含まれていてもよい。

【0027】したがって、各ユーザや各端末における多様な用途に応じて複数のデータ処理モジュールを準備しておき、各ユーザや各端末に必要なものだけを容易に選択して効率的にダウンロードできるので、様々な機能が要求されるデータ処理プログラムのバージョンアップを効率的に行うことができる。

【0028】また、多様な用途に応じたデータ処理モジュールを個々に準備することができる。

【0029】また、前記各用途は、前記各データ処理モジュールにより前記ユーザに提示されるべきデータ放送の属性であってよい。

【0030】したがって、ユーザは、データ処理モジュールの種類を設定あるいは入力するのではなく、希望するデータ放送の種類によって設定あるいは入力すればよい。

【0031】また、前記用途識別情報が複数の階層からなる階層構造となっていてよい。

【0032】また、前記バージョン番号は前記用途毎に管理されていてよい。

【0033】本発明の放送通信融合端末は、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった放送通信融合端末であって、前記データ放送をユーザに提示するためのデータ処理プログラムにインストールされ該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されているネットワーク上のアドレスとを含むダウンロード告知情報を前記データ放送と共に受信し、分離して解析するデジタル放送処理手段と、前記最新のバージョン番号が現在使用されているデータ処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールをダウンロードすることを決定し、該データ処理モジュールが取得されると該データ処理モジュールを前記データ処理プログラムにインストールする管理手段と、前記管理手段で前記データ処理モジュールのダウンロードが決定されると、前記データ処理モジュールおよびそのバージョン番号を格納しているモジュール提供サーバに前記アドレスを用いてアクセスし、前記データ処理モジュールをダウンロードにより取得する通信処理手段を有している。

【0034】本発明の他の放送通信融合端末は、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能、および双方向通信の機能をもった放送通信融合端末であって、前記データ放送をユーザに提示するためのデータ処理プログラムにインストールされ、該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されているネットワーク上の第1のアドレスとを含むダウンロード告知情報の

公開されているネットワーク上の第2のアドレスを、前記データ放送と共に受信し、分離して解析するデジタル放送処理手段と、前記最新のバージョン番号が現在使用されているデータ処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールをダウンロードすることを決定し、該データ処理モジュールが取得されると該データ処理モジュールを前記データ処理プログラムにインストールする管理手段と、前記第2のアドレスが得られるとそれを用いて、前記ダウンロード告知情報を格納している告知情報サーバにアクセスして前記ダウンロード告知情報を取得し、該ダウンロード告知情報から前記データ処理モジュールの最新のバージョン番号と前記第1のアドレスとを取り出し、また、前記管理手段で前記データ処理モジュールのダウンロードが決定されると、前記データ処理モジュールおよびそのバージョン番号を格納しているモジュール提供サーバに前記第1のアドレスを用いてアクセスし、前記データ処理モジュールをダウンロードにより取得する通信処理手段を有している。

【0035】なお、前記第2のアドレスにはバージョン番号が付与されており、前記第2のアドレスが得られると、前記通信処理手段は、得られた前記第2のアドレスのバージョン番号が、前回処理したもののバージョン番号より新しいときにのみ、前記第2のアドレスを用いて前記告知情報サーバにアクセスしてよい。

【0036】また、前記データ処理モジュールは用途毎に複数あり、前記ダウンロード告知情報に含まれている最新のバージョン番号は、複数の前記データ処理モジュールのそれぞれについて存在し、前記ダウンロード告知情報にはさらに前記各用途を識別するための用途識別情報が含まれていてよい。

【0037】また、前記各用途は、前記各データ処理モジュールにより前記ユーザに提示されるべきデータ放送の属性である。

【0038】また、前記用途識別情報が複数の階層からなる階層構造となっていてよい。

【0039】また、前記バージョン番号は前記用途毎に管理されていてよい。

【0040】また、前記ダウンロード告知情報からいずれかのデータ処理モジュールの最新のバージョン番号が取得されると、前記管理手段が、該データ処理モジュールの最新のバージョン番号と現在使用されているもののバージョン番号と新旧を比較し、比較結果をメモリに一旦格納した後、前記比較結果において前記最新のバージョン番号が前記現在使用されているバージョン番号より新しければ、前記最新のバージョンの前記データ処理モジュールをダウンロードすることを決定してよい。

【0041】したがって、比較結果によりデータ処理モジュール毎にバージョンアップがあったことをメモリに記録しておき、すぐにはダウンロードせず、後にダウン

ロードすることで、データ処理モジュールをダウンロードする時期を各放送通信融合端末毎にずらすことができる。

【0042】また、前記管理手段は、前記データ処理モジュールを実行する必要が生じたときに、前記比較結果において前記最新のバージョン番号が前記現在使用されているバージョン番号より新しければ、前記最新のバージョンの前記データ処理モジュールをダウンロードすることを決定してもよく、また、前記管理手段は、前記ユーザから指示があったとき、前記比較結果において前記最新のバージョン番号が前記現在使用されているバージョン番号より新しければ、前記最新のバージョンの前記データ処理モジュールをダウンロードすることを決定してもよい。

【0043】したがって、比較結果によりデータ処理モジュール毎にバージョンアップがあったことをメモリに記録しておき、すぐにはダウンロードせず、そのデータ処理モジュールの実行が必要となったとき、あるいはユーザの指示があったときにダウンロードする。

【0044】本発明のプログラムダウンロード方法は、モジュール提供サーバおよび放送局装置を有するプログラムダウンロードシステムから、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウンロード方法であって、前記モジュール提供サーバにおいて、予め、前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされて該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しておくステップと、前記放送局装置において、前記データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバのアドレスとを含むダウンロード告知情報を前記データ放送と共に放送するステップと、前記端末において、前記ダウンロード告知情報を前記データ放送と共に受信し、分離して解析するステップと、前記最新のバージョン番号が現在使用されているデータ処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールを前記モジュール提供サーバに要求するステップと、前記モジュール提供サーバにおいて、前記端末から要求があると、要求された前記データ処理モジュールを該端末にダウンロードするステップとを有している。

【0045】本発明の他のプログラムダウンロード方法は、モジュール提供サーバおよび放送局装置を有するプログラムダウンロードシステムから、デジタル放送の映像放送およびデータ放送を受信してユーザに提示する機能および双方向通信の機能をもった端末に、該端末で実行されるプログラムをダウンロードするプログラムダウ

ンロード方法であって、前記モジュール提供サーバにおいて、予め、前記データ放送をユーザに提示するために前記端末で実行されるデータ処理プログラムにインストールされて該データ処理プログラムの一部の機能を実現する少なくとも1つのデータ処理モジュールおよびそのバージョン番号を格納しておくステップと、前記放送局装置において、前記データ処理モジュールの最新のバージョン番号と該データ処理モジュールが格納されている前記モジュール提供サーバのアドレスとを含むダウンロード告知情報を前記データ放送と共に放送するステップと、前記端末において、前記ダウンロード告知情報を前記データ放送と共に受信し、分離して解析するステップと、前記最新のバージョン番号が現在使用されているデータ処理モジュールのバージョン番号より新しいとき前記最新のバージョン番号のデータ処理モジュールを前記モジュール提供サーバに要求するステップと、前記モジュール提供サーバにおいて、前記端末から要求があると、要求された前記データ処理モジュールを該端末にダウンロードするステップとを有している。

【0046】

【発明の実施の形態】本発明の第1の実施形態について図面を参照して詳細に説明する。

【0047】図1は、第1の実施形態のプログラムダウンロードシステムの構成を示すブロック図である。図1を参照すると、第1の実施形態のプログラムダウンロードシステムは、放送局装置1、コンテンツ配信サーバ2、モジュール提供サーバ3を有している。放送局装置1からのデジタル放送が端末5で受信され、ユーザに提示される。また、端末5は、ネットワーク4を介してコンテンツ配信サーバ2およびモジュール提供サーバ3に接続可能である。

【0048】放送局装置1は、放送局に設置され、映像放送およびデータ放送を含むデジタル放送を無線電波により配信する。映像放送は映像およびそれに同期した音声を含む放送である。データ放送は、ブラウザソフトウェアにより提示されるデータの放送である。

【0049】放送局装置1からのデータ放送にはダウンロード告知情報が含まれる。ダウンロード告知情報は、ブラウザソフトウェアであるデータ処理プログラムを構成するデータ処理モジュールの最新のバージョン番号と、そのデータ処理モジュールが格納されたサーバのアドレスとからなる。

【0050】コンテンツ配信サーバ2は、放送局装置1からのデジタル放送に関連する情報や、その他の情報をネットワーク4を介して提供するサーバである。コンテンツ配信サーバ2から提供される情報はブラウザソフトウェアにより端末5でユーザに提示される。

【0051】モジュール提供サーバ3は、各データ処理モジュールの最新バージョンを格納している。モジュール提供サーバ3は、端末5からアクセスされ、いずれか

のデータ処理モジュールが指定されると、指定されたバージョンのデータ処理モジュールを端末5に送る。

【0052】ネットワーク4は、データ転送が可能なインターネット等の通信ネットワークである。

【0053】端末5は、デジタル放送処理部11、通信処理部12および管理部13を有しており、デジタル放送に含まれる映像方法およびデータ放送の双方をユーザに提示することができる。端末5には、複数のデータ処理モジュール15-1、15-2、・・・、15-nからなるデータ処理プログラム14が記録されている。

【0054】デジタル放送処理部11は、放送局装置1からのデジタル放送に含まれる映像放送およびデータ放送を処理し、ユーザに提示する。また、データ放送にはダウンロード告知情報が含まれており、デジタル放送処理部11は、データ放送からダウンロード告知情報を取得する。

【0055】通信処理部12は、ネットワーク4を介してコンテンツ配信サーバ2およびモジュール提供サーバ3にアクセスし、そこから必要な情報を取得する。特に、管理部13から指示があると、モジュール提供サーバ3からデータ処理モジュールをダウンロードして取得する。

【0056】管理部13は、デジタル放送処理部11で取得されたダウンロード告知情報に含まれているバージョン番号と、データ処理プログラム14で現在用いられているデータ処理モジュールのバージョン番号とを比較する。管理部13は、取得されたバージョン番号が現在のものより新しければ、新しいバージョンのデータ処理モジュールのダウンロードを通信処理部12に指示する。そして、管理部13は、通信処理部12がダウンロードにより取得したデータ処理モジュールをデータ処理プログラム14にインストールする。

【0057】図2は、第1の実施形態の端末の動作を示すフローチャートである。図2を参照すると、端末5は、まず、データ放送からダウンロード告知情報を取得する(ステップ101)。次に、端末5は、ダウンロード告知情報を取得できたか否か判定する(ステップ102)。ダウンロード告知情報を取得できていなければ、端末5はステップ101の処理に戻る。

【0058】ダウンロード告知情報を取得できれば、端末5は、そのダウンロード告知情報から最新のバージョン番号を抽出する(ステップ103)。

【0059】なお、ここで抽出されたバージョン番号がV0であるとする。また、データ処理プログラム14で用いられているデータ処理モジュールのバージョン番号はV1であるとする。そして、バージョン番号V0のデータ処理モジュールをM0とし、バージョン番号V1のデータ処理モジュールをM1とする。

【0060】次に、端末5は、ダウンロード告知情報から、データ処理モジュールを提供するモジュール提供サ

ーバ3のアドレスを取得する(ステップ104)。なお、ここで抽出されたアドレスがA0であるとする。

【0061】次に、端末5は、ダウンロード告知情報から抽出したバージョン番号V0と、データ処理プログラム14内で用いられているデータ処理モジュールのバージョン番号V1を比較する(ステップ105)。バージョン番号V0がバージョン番号V1より新しければ、端末5は、ステップ101の処理に戻る。

【0062】バージョン番号V0がバージョン番号V1より新しければ、端末5は、アドレスA0のモジュール提供サーバ3にアクセスし、データ処理モジュールM0をダウンロードする(ステップ106)。次に、端末5は、新たにダウンロードしたデータ処理モジュールM0を、現在使用されているデータ処理モジュールM1に代えてデータ処理プログラム14にインストールし(ステップ107)、ステップ101の処理に戻る。

【0063】本実施形態によれば、データ処理モジュールのダウンロードが必要か否かがバージョン番号の新旧により簡潔に管理され、バージョン番号は放送により端末に通知されるので、放送で通知されるバージョン番号を比較することによりダウンロードすべきか否かを容易に判断することができ、通信にかかる時間が短縮され、またユーザに熟練を要求せずに効率的なダウンロードが実現される。

【0064】また、データ処理プログラムを複数のデータ処理モジュール毎に追加、更新することにより、ダウンロードの時間的、金銭的な負担を低く抑えつつ、様々な機能を最新の状態でユーザに利用可能とすることができる。

【0065】本発明の第2の実施形態について説明する。

【0066】図3は、第2の実施形態のプログラムダウンロードシステムの構成を示すブロック図である。図3のシステムは、告知情報サーバ6を有し、ダウンロード告知情報が告知情報サーバ6から配信される点で、ダウンロード告知情報が放送局装置1からデータ放送として送られる図1のシステムと異なる。また、図3のシステムでは、放送データに、ダウンロード告知情報ではなく、告知情報サーバ6のアドレスが含まれている。端末5は、通信処理部12により、放送データに含まれているアドレスで示される告知情報サーバ6にアクセスし、ダウンロード告知情報を取得する。

【0067】図4は、第2の実施形態の端末の動作を示すフローチャートである。図4を参照すると、端末5は、まず、データ放送から告知情報サーバ6のアドレスを取得する(ステップ201)。なお、ここで取得されたアドレスがB0であるとする。次に、端末5は、告知情報サーバ6のアドレスB0を取得できたか否か判定する(ステップ202)。アドレスB0を取得できていなければ、端末5はステップ201の処理に戻る。

【0068】告知情報サーバ6のアドレスB0を取得できれば、端末5は、告知情報サーバ6にアクセスし、ダウンロード告知情報を取得する（ステップ203）。次に、端末5は、そのダウンロード告知情報から最新のバージョン番号を抽出する（ステップ204）。

【0069】なお、ここで抽出されたバージョン番号がV0であるとする。また、データ処理プログラム14で用いられているデータ処理モジュールのバージョン番号はV1であるとする。そして、バージョン番号V0のデータ処理モジュールをM0とし、バージョン番号V1のデータ処理モジュールをM1とする。

【0070】次に、端末5は、ダウンロード告知情報から、データ処理モジュールを提供するモジュール提供サーバ3のアドレスを取得する（ステップ205）。なお、ここで抽出されたアドレスがA0であるとする。

【0071】次に、端末5は、ダウンロード告知情報から抽出したバージョン番号V0と、データ処理プログラム14内で用いられているデータ処理モジュールのバージョン番号V1を比較する（ステップ206）。バージョン番号V0がバージョン番号V1より新しくなければ、端末5は、ステップ101の処理に戻る。

【0072】バージョン番号V0がバージョン番号V1より新しければ、端末5は、アドレスA0のモジュール提供サーバ3にアクセスし、データ処理モジュールM0をダウンロードする（ステップ207）。次に、端末5は、新たにダウンロードしたデータ処理モジュールM0を、現在使用されているデータ処理モジュールM1に代えてデータ処理プログラム14にインストールし（ステップ208）、ステップ201の処理に戻る。

【0073】本発明の第3の実施形態について説明する。

【0074】第3の実施形態のプログラムダウンロードシステムの構成は図3と同じである。第3の実施形態では、放送局装置1からのデータ放送に含まれる、告知情報サーバ6のアドレスの情報にはバージョン番号が付与されている。告知情報サーバ6のアドレス情報を受信した端末5は、そのアドレス情報のバージョン番号を前回処理したバージョン番号と比較し、それより新しいときのみ、そのアドレスの告知情報サーバ6にアクセスする。

【0075】図5は、第3の実施形態の端末の動作を示すフローチャートである。図5を参照すると、端末5は、まず、データ放送から告知情報サーバ6のアドレス情報およびそのバージョン番号を取得する（ステップ301）。なお、ここで取得されたアドレスがB0であり、そのバージョン番号がU0であるとする。また、前回処理したアドレス情報のバージョン番号がU1であるとする。次に、端末5は、告知情報サーバ6のアドレスB0を取得できたか否か判定する（ステップ302）。アドレスB0を取得できていなければ、端末5はステッ

プ301の処理に戻る。

【0076】告知情報サーバ6のアドレスB0を取得できれば、端末5は、そのアドレス情報のバージョン番号U0と前回のバージョン番号U1とを比較する（ステップ303）。そのアドレス情報のバージョン番号U0が前回のバージョン番号U1より新しいものでなければ、端末5はステップ301の処理に戻る。

【0077】そのバージョン番号U0が前回のバージョン番号U1より新しければ、端末5は、告知情報サーバ6にアクセスし、ダウンロード告知情報を取得する（ステップ304）。次に、端末5は、そのダウンロード告知情報からデータ処理モジュールの最新のバージョン番号を抽出する（ステップ305）。

【0078】なお、ここで抽出されたバージョン番号がV0であるとする。また、データ処理プログラム14で用いられているデータ処理モジュールのバージョン番号はV1であるとする。そして、バージョン番号V0のデータ処理モジュールをM0とし、バージョン番号V1のデータ処理モジュールをM1とする。

【0079】次に、端末5は、ダウンロード告知情報から、データ処理モジュールを提供するモジュール提供サーバ3のアドレスを取得する（ステップ306）。なお、ここで抽出されたモジュール提供サーバ3のアドレスがA0であるとする。

【0080】次に、端末5は、ダウンロード告知情報から抽出されたデータ処理モジュールのバージョン番号V0と、データ処理プログラム14内で用いられているデータ処理モジュールのバージョン番号V1を比較する（ステップ307）。データ処理モジュールのバージョン番号V0がバージョン番号V1より新しくなければ、端末5は、ステップ301の処理に戻る。

【0081】データ処理モジュールのバージョン番号V0がバージョン番号V1より新しければ、端末5は、アドレスA0のモジュール提供サーバ3にアクセスし、データ処理モジュールM0をダウンロードする（ステップ308）。次に、端末5は、新たにダウンロードしたデータ処理モジュールM0を、現在使用されているデータ処理モジュールM1に代えてデータ処理プログラム14にインストールし（ステップ309）、ステップ301の処理に戻る。

【0082】本発明の第4の実施形態について説明する。

【0083】第4の実施形態のプログラムダウンロードシステムの構成は図1と同じである。第4の実施形態では、データ処理モジュールは、端末5におけるデータ処理モジュールの用途毎に複数用意される。データ処理モジュールの用途は、例えば、そのデータ処理モジュールを用いてユーザに提示するデータ放送によって異なる。データ放送によって、その提示に最適なデータ処理モジュールが異なるため、用途毎に複数のデータ処理モジュ

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ールが用意される。データ処理モジュールのバージョン番号は各用途毎に管理されていてもよい。

【0084】第4の実施形態では、放送局装置1からのデータ放送に含まれるダウンロード告知情報には、データ処理モジュールの最新のバージョン番号と、そのデータ処理モジュールが格納されたモジュール提供サーバ3のアドレスの他に、データ処理モジュールの用途識別情報が含まれている。用途識別情報とは、データ処理モジュールの各用途を識別するため情報であり、各用途を示す情報である。端末5は、取得したダウンロード告知情報に含まれる用途識別情報で示される用途毎に、データ処理モジュールをダウンロードするか否かを判断する。

【0085】図10は、用途識別情報の一例を示す図である。図10を参照すると、用途識別情報は、それが用途識別情報であることを示す記述（図中のmodule_category:）、放送局を特定する記述（図中のwww.XYZ.com）、サービス形態を特定する記述（図中のaaa）、番組カテゴリを特定する記述（図中のbbb）、通信キャリアを特定する記述（図中のccc）および機能を示す記述（図中のddd）から構成されており、各記述が各階層をなす階層構造となっている。

【0086】放送局の分類方法の一例において、データ処理モジュールは各放送局のデータ放送を処理するものに分類される。サービス形態の分類方法の一例において、データ処理モジュールは、有料放送を処理するものと無料放送を処理するものに分類される。番組カテゴリの分類方法の一例において、データ処理モジュールは、ニュース番組、スポーツ中継、ドラマ、映画などの番組カテゴリ毎に分類される。通信キャリアの分類方法の一例において、データ処理モジュールは、端末5が登録されている通信キャリア毎に分類される。これによれば、通信キャリア毎にデータ処理モジュールのフォーマットが異なる場合に、各通信キャリアに対して異なるデータ処理モジュールを指定することができる。機能の分類方法の一例において、データ処理モジュールは、Javaエンジン、ブラウザ、スクリプトエンジン、フレームのデザインであるスキン等といった機能毎に分類される。なお、ここで示された各記述の順序は一例であり、これに限定されるものではない。この順序が替わっても同様の作用および効果を得ることができる。

【0087】また、ここで示されたものの他に、放送局系列、ネットワーク識別子、特定の番組名、ソフトウェアペンダ名、ブラウザのテーマ等の様々な記述を用いてデータ処理モジュールを分類してもよい。

【0088】図6は、第4の実施形態の端末の動作を示すフローチャートである。図6を参照すると、端末5は、まず、データ放送からダウンロード告知情報を取得する（ステップ401）。次に、端末5は、ダウンロード告知情報を取得できたか否かを判定する（ステップ40

2）。ダウンロード告知情報を取得できていなければ、端末5はステップ401の処理に戻る。

【0089】ダウンロード告知情報を取得できれば、端末5は、そのダウンロード告知情報から最新のバージョン番号を抽出する（ステップ403）。

【0090】なお、ここで抽出されたバージョン番号がV0であるとする。また、バージョン番号V0のものと同じ用途の、データ処理プログラム14で用いられているデータ処理モジュールのバージョン番号がV1であるとする。

【0091】次に、端末5は、ダウンロード告知情報から、データ処理モジュールを提供するモジュール提供サーバ3のアドレスを抽出する（ステップ404）。なお、ここで抽出されたアドレスがA0であるとする。

【0092】次に、端末5は、ダウンロード告知情報から用途識別情報を抽出する（ステップ405）。なお、ここで抽出された用途識別情報がC0であるとする。また、その用途におけるバージョン番号V0のデータ処理モジュールをM0とし、バージョン番号V1のデータ処理モジュールをM1とする。

【0093】次に、端末5は、データ処理プログラム14内で用いられている用途識別情報がC0のデータ処理モジュールを検索する（ステップ406）。次に、端末5は、用途識別情報がC0のデータ処理モジュールがデータ処理プログラム14内にあるか否かを判定する（ステップ407）。

【0094】データ処理プログラム14内に用途識別情報がC0のデータ処理モジュールがあれば、端末5は、ダウンロード告知情報から抽出されたバージョン番号V0と、データ処理プログラム14内の用途識別情報がC0のデータ処理モジュールのバージョン番号V1とを比較する（ステップ408）。ダウンロード告知情報から抽出されたバージョン情報V0が、データ処理プログラム14内のデータ処理モジュールのバージョン情報V1より新しくなければ、端末5はステップ401の処理に戻る。

【0095】ステップ408の判定でバージョン情報V0がバージョン情報V1より新しいとき、あるいはステップ407の判定でデータ処理プログラム14内に用途識別情報がC0のデータ処理モジュールがないとき、端末5は、アドレスA0のモジュール提供サーバ3にアクセスし、データ処理モジュールM0をダウンロードする（ステップ409）。次に、端末5は、データ処理モジュールM0をデータ処理プログラム14にインストールし（ステップ410）、ステップ401の処理に戻る。

【0096】本実施形態によれば、各ユーザや各端末における多様な用途に応じて複数のデータ処理モジュールを準備しておき、各ユーザや各端末に必要なものだけを容易に選択して効率的にダウンロードできるので、様々な機能が要求されるブラウザ・アプリケーション

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ョンのバージョンアップを効率的に行うことができ、そのため操作応答性の低下とユーザの金銭的な負担の増加を低減できる。

【0097】また、本実施形態によれば、多様な用途に応じて個々にデータ処理モジュールを準備することができるので、様々な要求に応じた汎用的なプログラムを作成する必要がなく、不具合の生じる可能性を低減することができる。

【0098】本発明の第5の実施形態について説明する。

【0099】第5の実施形態のプログラムダウンロードシステムの構成は図1と同じである。第5の実施形態において、データ処理モジュールのバージョン番号は第4の実施形態と同様に用途毎に管理される。

【0100】そして、端末5は、ダウンロード告知情報から抽出された用途識別情報で示される用途のデータ処理モジュールがデータ処理プログラム14内にないとき、その用途のデータ処理モジュールをダウンロードするか否かを判断する。この判断は、ユーザに設定された端末5内の各種設定値に従って行われる。例えば、ユーザが提示を希望するデータ放送の種類が設定されていれば、設定されているデータ放送の提示の用途に適したデータ処理モジュールはダウンロードされるべきであると判断できる。また、ダウンロードするか否かを選択すべき旨をユーザに提示し、ユーザの入力に従ってダウンロードするか否かを判断してもよい。このとき、ユーザは、データ処理モジュールの種類を設定あるいは入力するのではなく、希望するデータ放送の種類によって設定あるいは入力すればよく容易である。

【0101】図7は、第5の実施形態の端末5の動作を示すフローチャートである。図7を参照すると、端末5は、まず、データ放送からダウンロード告知情報を取得する(ステップ501)。次に、端末5は、ダウンロード告知情報を取得できたか否かを判定する(ステップ502)。ダウンロード告知情報を取得できていなければ、端末5はステップ501の処理に戻る。

【0102】ダウンロード告知情報を取得できれば、端末5は、そのダウンロード告知情報から最新のバージョン番号を抽出する(ステップ503)。

【0103】なお、ここで抽出されたバージョン番号がV0であるとする。また、バージョン番号V0のものと同一用途の、データ処理プログラム14で用いられているデータ処理モジュールのバージョン番号がV1であるとする。

【0104】次に、端末5は、ダウンロード告知情報から、データ処理モジュールを提供するモジュール提供サーバ3のアドレスを抽出する(ステップ504)。なお、ここで抽出されたアドレスがA0であるとする。

【0105】次に、端末5は、ダウンロード告知情報から用途識別情報を抽出する(ステップ505)。なお、

ここで抽出された用途識別情報がC0であるとする。また、その用途におけるバージョン番号V0のデータ処理モジュールをM0とし、バージョン番号V1のデータ処理モジュールをM1とする。

【0106】次に、端末5は、データ処理プログラム14内で用いられている用途識別情報がC0のデータ処理モジュールを検索する(ステップ506)。次に、端末5は、用途識別情報がC0のデータ処理モジュールがデータ処理プログラム14内にあるか否かを判定する(ステップ507)。

【0107】データ処理プログラム14内に用途識別情報がC0のデータ処理モジュールがあれば、端末5は、ダウンロード告知情報から抽出されたバージョン番号V0と、データ処理プログラム14内の用途識別情報がC0のデータ処理モジュールのバージョン番号V1とを比較する(ステップ508)。ダウンロード告知情報から抽出されたバージョン情報V0が、データ処理プログラム14内のデータ処理モジュールのバージョン情報V1より新しくなければ、端末5はステップ401の処理に戻る。

【0108】ステップ507の判定で、データ処理プログラム14内に用途識別情報がC0のデータ処理モジュールがないとき、端末5は、その用途のデータ処理モジュールをダウンロードするか否かを判断する(ステップ509)。このときの判断方法は上述した通りである。ダウンロードしないと判断したとき、端末5は、ステップ501の処理に戻る。

【0109】ステップ509でダウンロードすると判断したとき、あるいはステップ508の判定でバージョン情報V0がバージョン情報V1より新しいとき、端末5は、アドレスA0のモジュール提供サーバ3にアクセスし、データ処理モジュールM0をダウンロードする(ステップ510)。次に、端末5は、データ処理モジュールM0をデータ処理プログラム14にインストールし(ステップ511)、ステップ501の処理に戻る。

【0110】本発明の第6の実施形態について説明する。

【0111】図8は、第6の実施形態のプログラムダウンロードシステムの構成を示すブロック図である。第6の実施形態のプログラムダウンロードシステムは、データ処理プログラム14に含まれるデータ処理モジュール15-1, 15-2, ..., 15-nの各々に対応してバージョン比較フラグ(F)16-1, 16-2, ..., 16-nを有している。

【0112】バージョン比較フラグ16-1, 16-2, ..., 16-nは、それぞれの対応するデータ処理モジュール15-1, 15-2, ..., 15-nについて、既にダウンロードされたデータ処理モジュールよりも新しいバージョン番号のものがモジュール提供サーバ3に存在するか否かが設定されるフラグである。パ

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ージョン管理フラグ16-1, 16-2, ..., 16-nのセットおよびリセットは管理部13によりなされる。

【0113】また、管理部13は、いずれかのデータ処理モジュールの実行が必要になったとき、あるいはユーザの操作により指定を受けたとき、そのデータ処理モジュールに対応したバージョン比較フラグがセットされていれば、最新のデータ処理モジュールをダウンロードし、データ処理プログラム14にインストールする。

【0114】図9は、第6の実施形態の端末のダウンロード告知情報を取得したときの動作を示すフローチャートである。図9を参照すると、端末5は、まず、ダウンロード告知情報を取得する(ステップ601)。次に、端末5は、ダウンロード告知情報を取得できたか否か判定する(ステップ602)。ダウンロード告知情報を取得できていなければ、端末5はステップ601の処理に戻る。

【0115】ダウンロード告知情報を取得できれば、端末5は、そのダウンロード告知情報から最新のバージョン番号を抽出する(ステップ603)。なお、ここで抽出されたバージョン番号がV0であるとする。また、データ処理プログラム14で用いられているデータ処理モジュールのバージョン番号はV1であるとする。

【0116】次に、端末5は、ダウンロード告知情報から、データ処理モジュールを提供するモジュール提供サーバ3のアドレスを取得する(ステップ604)。なお、ここで抽出されたアドレスがA0であるとする。

【0117】次に、端末5は、ダウンロード告知情報から抽出したバージョン番号V0と、データ処理プログラム14内で用いられているデータ処理モジュールのバージョン番号V1を比較する(ステップ605)。次に、端末5は、バージョン番号の比較結果をバージョン比較フラグに格納する(ステップ606)。なお、ここで格納されるバージョン比較フラグがF1であるとする。

【0118】V0がV1より新しいとき、バージョン比較フラグF1は(例えば、“1”に)セットされる。また、V0がV1より新しくないとき、バージョン比較フラグF1は(例えば、“0”に)リセットされる。

【0119】ダウンロード告知情報が受信されたとき、以上のようにしてバージョン比較フラグが格納される。そして、データ処理モジュールの実行が必要になったとき、あるいはユーザの操作により指定を受けたときに、端末5はバージョン比較フラグを参照し、ダウンロードを行うか否か判断する。

【0120】本実施形態によれば、バージョン比較フラグによりデータ処理モジュール毎にバージョンアップがあったことを記録しておき、そのデータ処理モジュールが必要となったときあるいはユーザに指示されたときにダウンロードするので、無駄なダウンロードで操作応答性を低下させたり、金銭的な負担を増加させることがな

い。例えば、ユーザや端末によっては全く用いることのないデータ処理モジュールが存在することがあり、その場合にそのようなデータ処理モジュールについてバージョンアップだけが無駄に行われるということがない。

【0121】また、データ処理モジュールをダウンロードする時期を各端末5毎にずらすことができるので、データ放送によるバージョンアップの通知を受けた多数の端末5からモジュール提供サーバ3へアクセスが集中するのを防止できるという効果もある。

【0122】

【発明の効果】本発明によれば、データ処理モジュールがバージョン番号の新旧により簡潔に管理され、バージョン番号は放送により端末に通知されるので、放送で通知されるバージョン番号を、使用中のバージョン番号と比較することによりダウンロードすべきか否か容易に判断することができ、通信にかかる時間が短縮され、またユーザに熟練を要求せずに効率的なダウンロードが実現される。

【0123】また、データ処理プログラムを複数のデータ処理モジュール毎に追加、更新することにより、ダウンロードの時間的、金銭的な負担を低く抑えつつ、様々な機能を最新の状態でユーザに利用可能とすることができる。

【0124】また、各ユーザや各端末における多様な用途に応じて複数のデータ処理モジュールを準備しておき、各ユーザや各端末に必要なものだけを容易に選択して効率的にダウンロードできるので、様々な機能が要求されるデータ処理プログラムのバージョンアップを効率的に行うことができ、そのため操作応答性の低下とユーザの金銭的な負担の増加を低減できる。

【0125】また、多様な用途に応じたデータ処理モジュールを個々に準備することができるので、様々な要求に応じた汎用的なプログラムを作成する必要がなく、不具合の生じる可能性を低減することができる。

【0126】また、ユーザは、データ処理モジュールの種類を設定あるいは入力するのではなく、希望するデータ放送の種類によって設定あるいは入力すればよく、操作が容易である。

【0127】また、比較結果によりデータ処理モジュール毎にバージョンアップがあったことをメモリに記録しておき、すぐにはダウンロードせず、後にダウンロードすることで、データ処理モジュールをダウンロードする時期を各放送通信融合端末毎にずらすことができるので、データ放送によるバージョンアップの通知を受けた多数の放送通信融合端末からモジュール提供サーバへアクセスが集中するのを防止できる。

【0128】また、比較結果によりデータ処理モジュール毎にバージョンアップがあったことをメモリに記録しておき、すぐにはダウンロードせず、そのデータ処理モジュールの実行が必要となったとき、あるいはユーザの

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指示があったときにダウンロードするので、無駄なダウンロードで操作応答性を低下させたり、金銭的な負担を増加させることがない。

【図面の簡単な説明】

【図1】第1の実施形態のプログラムダウンロードシステムの構成を示すブロック図である。

【図2】第1の実施形態の端末の動作を示すフローチャートである。

【図3】第2の実施形態のプログラムダウンロードシステムの構成を示すブロック図である。

【図4】第2の実施形態の端末の動作を示すフローチャートである。

【図5】第3の実施形態の端末の動作を示すフローチャートである。

【図6】第4の実施形態の端末の動作を示すフローチャートである。

【図7】第5の実施形態の端末5の動作を示すフローチャートである。

【図8】第6の実施形態のプログラムダウンロードシステムの構成を示すブロック図である。

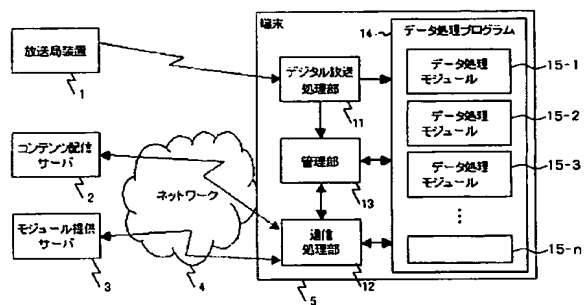
【図9】第6の実施形態の端末のダウンロード告知情報を取得したときの動作を示すフローチャートである。

【図10】用途識別情報の一例を示す図である。

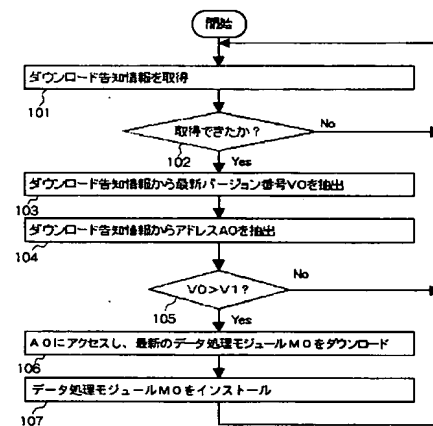
【符号の説明】

- 1 放送局装置
- 2 コンテンツ配信サーバ
- 3 モジュール提供サーバ
- 4 ネットワーク
- 5 端末
- 6 告知情報サーバ
- 11 デジタル放送処理部
- 12 管理部
- 13 通信処理部
- 14 データ処理プログラム
- 15-1～15-n データ処理モジュール
- 16-1～16-n データ比較フラグ
- 101～107, 201～208, 301～309, 401～410, 501～511, 601～606 ステップ

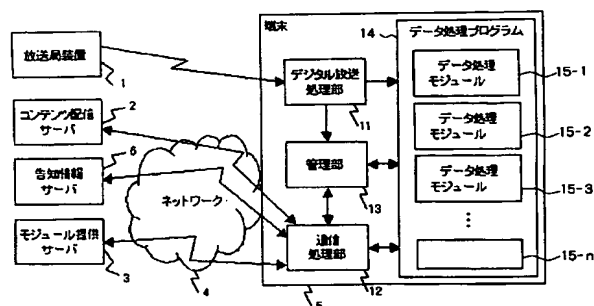
【図1】



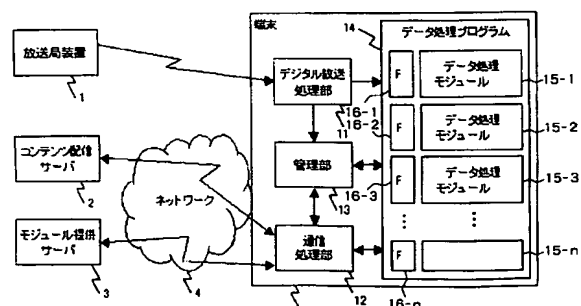
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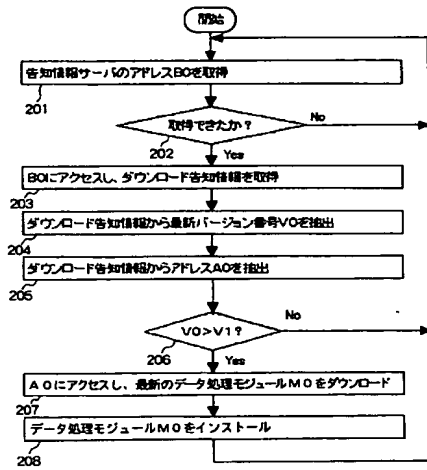
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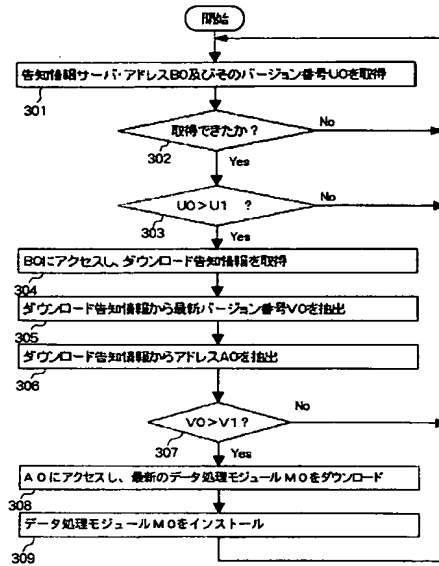
【図8】



【図4】



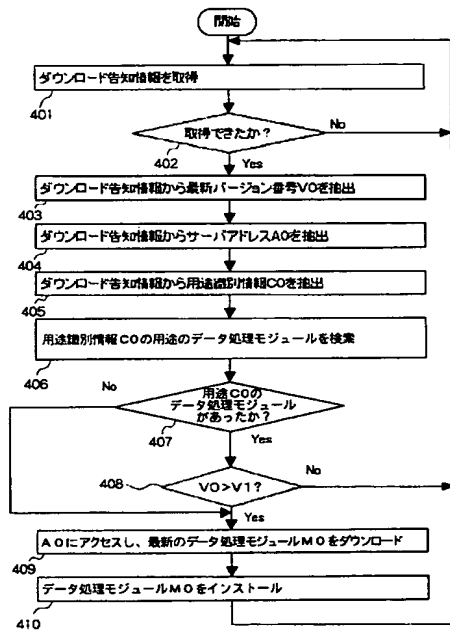
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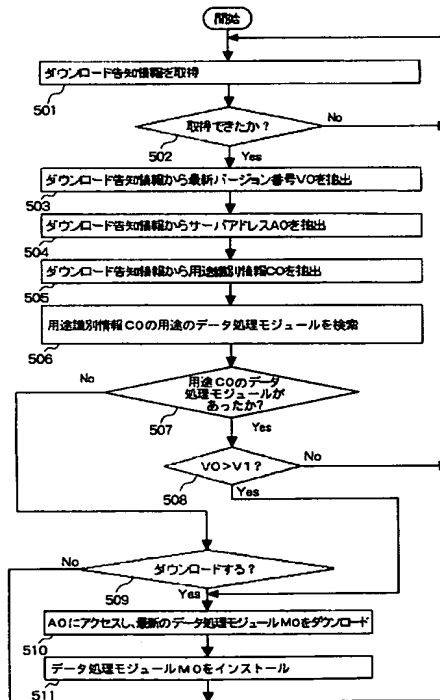
【図10】

module_category://www.XYZ.com/aaa/bbb/ccccc/ddd/

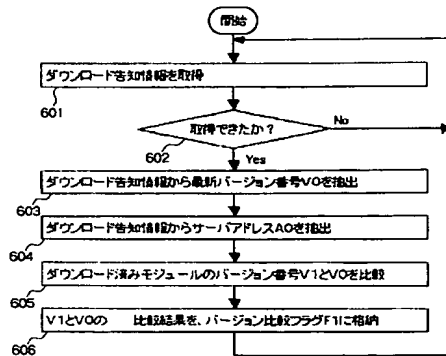
【図6】



【図7】



【図9】



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